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# Journal OF THE AMERICAN DIETETIC ASSOCIATION

VOL. 27, NO. 1 JANUARY 1951

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*J. R. McGibony*, M.D.

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Our Professional Mirrors

Learning Community Needs for Nutrition Services

***34th A.D.A. Annual Meeting, Cleveland, October 9-12, 1951***

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## CONTENTS, JANUARY 1951

FORECAST-FARE. Outlook for Better Hospital Service—*J. R. McGibony, M.D.* ..... 13

DIETARY CONSULTATION—A SERVICE FOR SMALL INSTITUTIONS. VI. Planning Layout and Equipment—*Wilma D. Robinson* ..... 16

WHAT ARE CLEANING MATERIALS? HOW DO THEY WORK?—*Samuel J. Miller* ..... 24

LIMITATIONS IN THE USE OF DIETARY STANDARDS. Differences in American, British, and Canadian Standards—*Lionel Bradley Pett*, Ph.D., M.D. ..... 28

DIELECTRIC VS. STEWPAN COOKERY. Comparison of Palatability and Vitamin Retention in Frozen Peas—*Helen Baker Stevens and Faith Fenton* ..... 32

NUTRITIONAL FINDINGS IN CHINESE SCHOOL CHILDREN. Plasma Ascorbic Acid, Hemoglobin, and Total Serum Protein—*Lan-Chen Kung and Peng-Cheng Hsu* ..... 36

EDITORIAL
Our Professional Mirrors—*Lillian Storms Coover*, Ph.D. ..... 39

CURRENT COMMENT
Learning Community Needs for Nutrition Services—*Jeanette Peterson Hamlin* ..... 41

BOOK REVIEWS ..... 46

CURRENT LITERATURE ..... 48

NEWS NOTES ..... 54

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# Forecast-Fare

## Outlook for Better Hospital Service[1]

**J. R. McGIBONY, M.D.**

*Medical Director, Chief, Division of Medical and Hospital Resources, U. S. Public Health Service, Washington, D. C.*

IT IS now four years since the Hill-Burton Act became law. Thus, the National Hospital Program is relatively new. Almost two hundred new hospital projects are in operation today under this program, while nine hundred others are actually under construction. The total of all approved projects to date is about fifteen hundred. If these figures represented tents pitched at a Boy Scout jamboree, they would still be impressive; but they represent permanent hospital structures designed and built to exacting standards. Beyond the brick and mortar of the buildings, we must envision the complex services vital to the health and welfare of their communities and of our country.

Most of the new hospitals being built are small—68 per cent will have less than fifty beds, and 89 per cent will have less than a hundred beds. This means that as one phase of the multi-billion dollar hospital business, we are going to see several hundred new *small* hospitals opening throughout the country within a year or two. Many of these small hospitals are coming to completion now. In the month of May, for instance, four new general hospitals of ten beds, fourteen beds, fifteen beds, and fifty beds, respectively, were opened in Texas alone.

The "State Plans" submitted under the National Hospital Program have given us estimates of hospital beds needed, but even the accelerated Hill-Burton program can supply less than a quarter of these. Adequate care of our people in hospitals can never be based upon rough estimates, useful as those may be in the broad overview of needs, because health problems are not the same everywhere. Careful planning is required, including the thorough evaluation of needs, policies, services, staffing patterns, economy, population indices, and many other factors. The demand for hospital care is growing so rapidly in some areas that our latest "general" estimates have become as outdated as baseball in November. For instance, the often-repeated ratio of hospital beds to population is useful for estimating, but constant repetition is likely to lead to acceptance of these figures as maximums. Actually, they are maximums to which the federal government may contribute funds, but might, in some instances, be the minimum number of hospital beds needed to provide acceptable care. It is quite probable that future years will find us raising our estimated needs for hospital beds to correspond to increased use of hospitals.

### PROBLEMS OF SMALL COMMUNITIES

In these state plans and in our estimates of needs, the small hospital cannot be ignored. More than two-thirds of all general hospitals in this country today have less than 100 beds. It is obvious that small hospitals are needed in our present pattern of living. Life and death are just as much matters of urgency in the small community as in the large, and small hospitals must measure up to an increased demand for the best in patient care. The problems of operation faced by the small hospitals are even more complex than those faced by large facilities.

### OUR HOSPITAL SYSTEM

But, taken altogether, hospitals—large and small—as a business, stand as one of the ten largest industries in the country, if we consider personnel employed, services rendered, and purchasing power. More than 1½ million patients and 1 million personnel are served food daily in our hospitals. At least 60 per cent of the individuals served require "room service." The industry represents a capital investment of almost $7 billion, with annual expenditures of nearly $3½ billion. At least $500 million of this is for raw food costs.

The chances are that one of every eight of us will become a patient in a hospital before the next convention of this Association.

In the light of these statistics, it seems to me that it is past time for our multi-billion dollar hospital business to reach the stature that its importance to the people deserves.

It is unthinkable that the success of the total program for better patient care should be endangered by haphazard methods, guesswork, and lack of any scientific basis for system and coordination.

[1] Presented at the 33rd Annual Meeting of The American Dietetic Association in Washington, on October 19, 1950.

### IMPROVING HOSPITAL FOOD SERVICE

Getting hospitals to serve better food with better food management, I know, is also one of the major objectives of The American Dietetic Association. The motto upon your seal, *Quam Plurimis Prodesse*, affirms the purpose of the Association: "The greatest good of the greatest number."

Three out of five American hospitals in all categories have no qualified dietitian. In hospitals of fewer than one hundred beds, the figure is four out of five. In those of fewer than fifty beds, it is twelve out of thirteen. The hundreds of new small hospitals are going to face a special problem.

While the shortage of trained dietitians is acute and general, the small hospital particularly is faced with many problems in providing good food service. Even if the supply of professional dietitians were plentiful, it is doubtful if the small facility would feel it could afford to pay the salary. In 1949, the median annual cash salary of hospital dietitians, not including cash equivalent for any maintenance provided by the employer, was about $2800. This is far from a high wage for a professional person, but it is often difficult to persuade the small hospital with a set and limited budget to invest that amount yearly to assure good food service.

We, of course, feel rightly that diet and food management are of primary importance, but the people who must delineate the small hospital budget are often not completely informed. Many of the actual effects of having unskilled persons in a hospital may go unnoticed by the public.

If we were to put a laborer to work in a munitions factory with no more training than he now receives in many hospitals, the early effect might be a tremendous explosion. In the hospital field, the harm done by carelessness and ignorance may be immense, but it is often hard to relate to cause. Sometimes the damage is not observable immediately.

I know that you can think of many examples of this in dietetics, where unskilled labor may result in inferior services to the patient or excessive costs of administration.

I was interested to read not long ago that a typical diet for hospital patients at the end of the seventeenth century was mush and molasses three days a week for breakfast, and the meal at supper for four evenings a week was—mush and molasses. One hospital added a pint of beer for supper. An inspection committee of the times wrote that the patients were well satisfied with the hearty meals which were also well adapted to the budget.

I am afraid that we must be realistic and admit that even today, particularly in the small hospitals, food service—if left to chance—is likely to be better adapted to the budget than to the patient.

While I place emphasis upon the problems of the small hospital, the larger facility also feels the pinch of the budget and the shortage of dietitians. A survey revealed that fifteen general and special short-term hospitals of 250 and more beds had *no* qualified dietitians.

A friend of mine was sent to the hospital by her doctor with instructions to spend a couple of weeks in bed there. After four days she called her doctor saying she wanted to go home and told him that she could not stand being hungry any longer. "They starved me!" she said. This was a large, modern hospital, and the lady had been paying almost $30 a day for service! The administrator explained, "We just can't get or keep sufficient help."

I am sure it is evident that our first and continuing problem for some time to come is to train more dietitians and better dietitians. Meanwhile, the present need for research and demonstrations will continue. With that, there is the correlative necessity to disseminate knowledge in the field. Special measures will be necessary in the interim if new hospitals are to provide their patients with adequate food service.

I have just outlined in a few words an ambitious program. If you were to ask me exactly how the American Dietetic Association can accomplish all this, I would reply that you can accomplish it by the same methods by which you have grown in little more than a quarter century from a small group of fifty-eight members to an association of over eight thousand professional dietitians.

Dr. Malcolm MacEachern said recently (1): "In the course of fifty years—only half a century—the dietitian has made herself a person of great power and influence—for it was in September, 1899, that the designation 'dietitian' was first applied . . . to the person who specializes in the knowledge of food and can meet the demands of the medical profession for diet therapy."

I believe, myself, that you are people of power and influence. I know, however, that you are very busy people, and that in asking you to meet even greater demands I am asking a great deal.

### THE DIETITIAN'S FIELD

It is easy to talk about better training and more dietitians, but we should be realistic. A good dietitian is a combination of artist, psychologist, diplomat, manager, and teacher.

The dietitian is an artist who creates flavors, food combinations, and techniques of preparation. She is a psychologist who will need to understand the personality problems of others. Her department is closely related to other services, so she must be a real diplomat to be effective. A good dietitian may also need to manage her employees so that they will be content to work in a kitchen where summer temperature may range from 100° to 114°! She must teach patients and staff and sometimes less experienced workers. Besides all this, she may be expected to pitch in and work like a Trojan herself.

How can you find people of the right caliber and train them in a few months? It just cannot be done that quickly. The American Dietetic Association has been carrying on a public relations and vocational guidance program to interest more young women in dietetics as a career, and I hope that you will intensify your campaign in that direction. Even so, we must face the probability that for a while the acute shortage will remain. How can hospitals make the most use of the trained dietetic service that is available?

### COORDINATING DIETETIC SERVICES

Coordination of hospital services within regions where that is practicable seems to me to be one answer to many hospital problems. The integration and coordination of dietetic services in hospitals is one measure which can be taken in time to be effective in the present emergency.

Hospitals in the same service area may be able to share the services of one dietitian or arrange for consultation with a professional dietitian. The exchange of information on administrative or technical matters is also a technique of coordination.

Coordination implies cooperation such as occurs only with a certain amount of planning and promoting. Hospitals will not come to exchange services and technical information without preparatory work by administrators and the people who determine policies. The American Dietetic Association, as a united group of professional people, can promote the concept of coordinated effort among hospitals. You, as individuals, may also be able to use your own affiliations to encourage mutually beneficial cooperation among hospitals. Of course, this is not just an administrative technique; it is a means for obtaining adequate care for patients in our hospitals.

### RESEARCH AND DEMONSTRATION NEEDS

The need for research and demonstrations related to hospital care was recognized by the 81st Congress, which passed Public Law 380, amendment to the basic Public Health Service Act. Section 636 of this law authorized grants for research up to $1,200,000 in any fiscal year.

The American Dietetic Association had requested a grant to assist the Association in an extensive research project. Unfortunately, in the light of the present world situation, Congress did not appropriate funds under the authorization. Let us say that these funds have been delayed by the requirements of changing times, but at the same time let us remember that the need for research is more urgent than ever. We may look forward to the time when funds for such grants will accelerate the studies and demonstrations in the technique of coordination and integration. They will develop information in specialties such as medicine and surgery, dentistry, nursing, pharmacy, social service, institutional equipment, personnel requirements, financing and administrative practices, and of course, dietetics.

But while we look forward to such extensive studies, we must realize that now more than ever we need to work together to make the most of what we now have. The project submitted by your Association proposed development of regional or state programs in the form of food service conferences, and the Association wished to effectuate a program for coordinating hospital services and state and regional resources.

There is no question in my mind that the research and demonstrations proposed by The American Dietetic Association would be of great value to society. It is my personal hope that funds will be made available in the near future, so that the Division of Medical and Hospital Resources will be able to cooperate with The American Dietetic Association in a research program and an *action* program.

We are all more concerned, however, with immediate necessities, and I know that I do not need to suggest to you the present day urgency to conserve our human resources as well as to make the most of our material resources. Perhaps this urgency will make you do "better than your best" and when research funds are available at last, we will all be further along the way toward our goal of better patient care through more efficient methods in hospital service.

From the mush and molasses of the seventeenth century to the tasty, nutritious meals which are served patients in the best hospitals today is a long measure of progress, and The American Dietetic Association has played a major part in this progress. I have said that we expect the modern professional dietitian to be everything from stevedore to sanitation expert; and now I am asking you to be promoters, expediters, and organizers. I know that you will join the other professions, and with the American Hospital Association in continuing the progress in your field.

I hope that you will be able to plan for more and better dietitians to meet the needs of the accelerating hospital program. I know that you will continue to carry on research in dietetics and the dissemination of information in this field. I hope that the Division of Medical and Hospital Resources and others in the U. S. Public Health Service will be able to cooperate with you toward the goal of better patient care for our people in all of our hospitals.

### REFERENCE

(1) MacEachern, M. T.: Advances in dietetics from the hospital viewpoint. Proper food now ranks as prime therapeutic aid in medical practice. J. Am. Dietet. A. 25: 494, 1949.

# Dietary Consultation—A Service for Small Institutions

## VI. Planning Layout and Equipment

WILMA D. ROBINSON[1]

*Consultant Dietitian, Illinois Department of Public Health, Springfield*

PROGRAMS for hospital construction made possible by the passage of Public Law 725—the Hospital Survey and Construction Act—have emphasized the need for information regarding the basic principles of good planning for all departments of the hospital. An appreciable number of these hospitals are in communities in which a hospital has not previously existed, and experienced hospital personnel to assist with the planning of the new institution is not available. Hence, the need for the services of the consulting dietitian has increased with this increased construction. Therefore, in addition to advising institutions about the purchase and care of equipment, the added responsibility of advising for new construction and equipment at this time occupies a major portion of the consultant's time.

The purpose of this discussion is to recognize and consider the problems of consultation service in planning layout and equipment and to provide a critical bibliography consisting of two types of source material: first, selected references that will provide the consultant with new and pertinent material which will help her to evaluate and meet her problems; second, references to material that can be distributed by the consultant directly to institutions. Basic information is also presented that may be helpful not only to hospital personnel but to those in institutions other than hospitals who need such assistance in the planning and equipping of a food service department.

[1] Member of the National Committee of the Community Nutrition Section of The American Dietetic Association on Preparation of a Manual for Use in Dietary Consultation Service to Institutions without Trained Food Service Personnel. The author wishes to acknowledge and thank the following people for their advice and counsel: Mildred Bonnell, Felisa Bracken, Mary Ellen Dambold, Margaret B. Dreisbach, Mary Griffin, Clarice Gullickson, Jane Hartman, Marjorie Heseltine, Edith Holt, Helen Hunscher, Cora Kusner, Rosalind Lifquist, Grace McMahon, Juanita Cochran Miller, Mary W. Northrop, Helen Phaneuf, Hazel K. Stiebeling, Frances Swenson, E. Neige Todhunter, and members of the Executive Board and staff of The American Dietetic Association.

The considerations of the consultant in planning refer principally to: space allotments; types of floors, walls, lighting, sound proofing, and ventilation; and the selection, placement, and care of equipment.

Excellent material on this subject has been assembled by the U. S. Public Health Service (1) and other agencies and is available upon request.

### GENERAL CONSIDERATIONS

Since the layout of the dietary department and the equipment provided play a significant role in the development of an efficient food service much thought should be given to its planning. It is most important that this planning be cooperative in that the architect, administrator, engineer, and consulting dietitian work together to produce the most practical arrangement. The consultant's recommendations shou d be of great value because of her experience with the present layout (if the plans concern remodeling) or her knowledge of the workability of the plans of other institutions in which she has had experience. She also knows the details involved in the administration of a dietary department that often affect appreciably decisions on the location of individual units.

#### *Location*

The first consideration in planning a food service unit is its location in relation to the general plan. This unit should be centrally located so that transportation routes to patient and service areas and to storage facilities are as direct as possible. A location at grade level or not more than 4 ft. below grade is considered preferable. The opportunity for a maximum amount of natural light and ventilation is valuable psychologically, although modern methods of artificial lighting and ventilation have decreased its practical importance. The familiar basement kitchen—dark, poorly ventilated and lighted, and with many overhead pipes—should certainly be relegated to the past.

*Total Floor Area*

The second consideration is the total floor area necessary for the food service unit. The actual space needed will vary with the size of the institution, type of food service, and type of menu. Allowance should also be made for future expansion. Adjacent areas may be temporarily assigned to other purposes and later be made available to the food service department. General estimates of the total space allowance usually exclude the areas required for floor serving pantries, bulk food storage, and employee locker rooms. In the hospital, the space required, exclusive of the above areas, will usually vary from 20 to 30 sq. ft. per bed. The important factor to remember is that sufficient space should be allocated for all of the activities involved. Sufficiently wide passageways between work areas are also an important consideration.

*Type of Service*

In the hospital a decision as to the type of tray service must be made early since it affects the size of the floor serving pantries as well as the space allocation in the kitchen area. There are two general types of tray service—centralized and decentralized. Centralized service is more readily adapted to a building in which vertical transportation of trays is possible, although it can be modified for use in any type structure. It is thought that a decentralized service is perhaps more satisfactory in large institutions in which the food must be transported great distances or in hospitals for long-term patients where catering to the patients' fluctuating tastes is an important factor.

In a centralized service the trays can be transported by subveyor, dumbwaiter, or tray truck. The subveyor system consists of a conveyor belt on which trays are assembled and moved to a vertical tray carrier. If the vertical tray carrier is not desired, electric dumbwaiters may be substituted, and the tray assembly unit may or may not have a conveyor belt. The least expensive method of transporting trays in a centralized service, at least from the standpoint of initial cost, is the tray truck. When heated tray trucks are used, it is usually necessary to complete the tray assembly in the floor serving kitchen, because the cold food is placed in an unheated section of the truck. Unheated tray trucks may be used, but it is difficult to keep the hot food hot unless the distance between the tray assembly unit and the patient's room is short. If a centralized type of tray service is decided upon, space in or near the kitchen area should be allocated for the necessary equipment. If trucks are used for the transportation of trays, the plans must include an area for truck storage.

In a decentralized service, the food is sent in bulk from the preparation area to the floor serving kitchen. It may be transported by dumbwaiter or food truck. If this type of service is preferred, less space will be needed for the kitchen area, although truck storage may be a consideration. Larger floor serving kitchens will be necessary as they must accommodate adequate equipment for tray assembly and, in most instances, dishwashing.

The advantages of a centralized system are that it is rapid, supervision of every tray is possible, and there is no necessity for the purchase of duplicate equipment since a small receiving station on each floor is all that is needed. However, this type of service will not be successful unless there are a sufficient number of well-trained employees for tray assembly and a sufficient number of prompt tray carriers to assure uniform service and rapid distribution of trays.

The advantages of a decentralized system are: the completed tray is transported a relatively short distance; there is less danger of the hot food becoming cold before it reaches the patient; it is easier to make last minute changes or substitutions in a patient's diet; and food trucks cost less than a subveyor installation. The disadvantages of this system are: the service is comparatively slow; adequate supervision is difficult; additional employees are needed to staff the floor serving kitchens; duplicate equipment must be purchased to equip the floor serving kitchens; and the hot food may become overcooked in transit and during the serving period.

In institutions other than hospitals, a decision is also necessary in regard to the type of food service. Cafeteria service has steadily increased in popularity and is probably the most frequently used method in all institutions. However, there are instances in which waitress service is desired or required. This decision depends entirely on the individual situation in the institution involved.

Another important consideration is the need for checking the local sanitary code. If disregarded, noncompliance may lead to costly alterations.

## SPACE ALLOTMENT AND EQUIPMENT FOR MAJOR AREAS

Space should be provided for the following: receiving and storage, pre-preparation and preparation of food, serving, dishwashing, pot and pan washing, cleaning supplies, garbage disposal, lockers and rest rooms for dietary employees, and a supervisor's office. Some of these areas must be enclosed, but in the preparation area a minimum number of partitions will simplify cleaning and result in a more spacious and attractive kitchen. In planning the location of the individual units, a flow chart indicating the progress of the food from the time it is received until it is consumed will be a valuable aid. The proper sequence is as follows: receiving→storage→pre-preparation→preparation or cooking→serving→consumption→dishwashing→disposal of waste.

*Receiving and Storage*

The receiving area should open on a service driveway for easy access of trucks. A platform the same height as the bed of a truck is a convenience. Bulk food storage should be adjacent to the receiving area, and storerooms should have a minimum of exits. If space is provided in the general storeroom for bulk food storage, this area need not be adjacent to the kitchen, but the transportation route from storeroom to kitchen should be as direct as possible so that daily deliveries can be made quickly and easily. In this event, space should be provided in the kitchen area for "day stores." If the storage of all food supplies is the responsibility of the food service department, the receiving area and storage units should be located close to the kitchen so that the distance from storage to the preparation unit is short and control of these supplies is facilitated. In this case a room for "day stores" may not be needed if storage space is provided in the individual units of the kitchen for supplies used routinely. Refrigerators for bulk storage may be located in the general storeroom or in the kitchen area, but these units should be near the receiving entrance.

The space needed for receiving and food storage will vary with each institution. It is affected by the menu pattern, the number to be served, and the frequency of deliveries. An estimate should be made of the expected amounts of food to be stored, keeping in mind any possibility of future expansion. From this information the amount of space necessary can be calculated. The receiving area should be large enough to accommodate scales for weighing food supplies received and sufficient space to take care of routine deliveries. In the central storage area, there should be space for the estimated stock of canned goods, staple groceries, china, silver, glassware, linen, paper goods, and cleaning supplies. Clear floor space will be needed for platforms for case goods and shelf space for unpacked goods and small items. The space allowed for "day stores" should be large enough to accommodate one or two days' supplies.

Adequate refrigeration is most important, but the amount of space needed will vary with each institution. If frozen meats, fruits, and vegetables are used extensively and deliveries of fresh foods are small, one walk-in refrigerator or perhaps smaller reach-in boxes may be sufficient in the small institution. On the other hand, if many fresh fruits and vegetables are used, and fresh meat deliveries are of sufficient size, three walk-in boxes will be needed for meat, fruits and vegetables, and dairy products.

Facilities should also be provided for the storage of frozen foods, the size being dependent on the extent of the use of frozen foods and on the availability of commercial frozen food lockers in the community. A small home-type freezer may be sufficient or a walk-in box may be required. The need for storage facilities for bulk ice cream should also be checked as well as space for racks or bins in which to store vegetables and fruits that do not require refrigeration.

Storage equipment other than those items mentioned above will include shelving for supplies other than case goods, metal bins or cans for the storage of cereal products received in bulk, and duckboards (approximately 6 in. from the floor) on which case goods can be stocked. Adjustable steel shelving is preferable, and it is desirable to have the shelving open on both sides so that new supplies can be put in at the back. The platforms for case goods are protection from excessive water on the floor from mopping or floods due to leaks in pipes.

*Pre-Preparation*

Facilities for the pre-preparation of food, such as meat and vegetables, should be located between the storage and the cooking areas. This arrangement will result in a logical flow of work. In the small institution these units will probably be located in the kitchen proper, but in larger institutions they may be planned as separate units.

The space for pre-preparation will be included in the total space allowed for the kitchen. Small institutions in which pre-cut meat ready for cooking is bought will need refrigeration only in the cooking area, so the space needed will be small.

*Meat Preparation.* The minimum equipment requirements for meat preparation are a sink and a table. If the meat purchased needs further cutting and trimming, a meat block will be necessary. In the small institution, such as the fifty-bed hospital, all meat preparation can be done in the cook's unit so that the sink and table in that unit may be used, and a meat block may be the only additional equipment needed. Other desirable equipment includes a meat slicer; a meat grinder, which may be obtained as an attachment for the mixing machine; a scale; and in larger institutions, an electric meat saw.

*Vegetable Preparation.* For vegetable preparation a double sink with drainboards on one or both ends is essential. A potato peeler, while it may not be essential in a small institution, is certainly most desirable and should be located so that it empties directly into a sink. A table will also be needed in this area, the length dependent on the number of employees involved in preparation of vegetables. A vegetable chopper may also be desirable.

*Preparation*

The location of cooking facilities in the center of the kitchen gives access to all sides of the equipment, and this facilitates cleaning and also permits several employees to work around the unit without cross traffic. This area will include cooking, baking, salad

making, and the preparation of food for therapeutic diets. These facilities should be located between pre-preparation and serving. In relation to the total plan, these units should be centrally located, so that food can be easily and quickly transported to the service areas.

The amount and size of equipment to be installed will affect this estimate. The area required will decrease as the size of the institution increases. A detailed sketch of this unit showing the equipment to be installed should be made to determine exactly the amount of space needed.

*Cook's Unit.* The cook's unit in its simplest form will require a space approximately 10 ft. wide—3 to 3½ ft. for the range, 4 ft. for an aisle between range and work table, and 2½ ft. for the cook's table. The length will depend upon the number of range units. If steam or other equipment is placed behind the ranges, a space of approximately 2 ft. should be left between for easy cleaning.

The minimum equipment requirements for cooking in the small institution will consist of: a range with oven space and a work table and a mixing machine. The range should be covered with a hood. A 50- to 100-bed hospital will usually require two range units with additional ovens. A steam kettle and compartment steamer are of great value, and a broiler should be included if possible. The type of broiler will depend on the amount of usage anticipated. It may be a range attachment of broiler with griddle top or a salamander. In larger institutions, a separate broiler and roaster may be required.

As the institution increases in size and the menu becomes more complex, additional range units, ovens, broilers, deep-fat fryers, and steam equipment will be necessary. A refrigerator should be located in the vicinity of this unit for daily supplies and left-overs. A sink built into the cook's table is also a great convenience, as is a swinging water faucet over the steam kettle and range.

A lavatory for washing hands should also be conveniently located to this area.

*Bake Shop.* The area needed for baking will depend on the menu. It may not be necessary in the small institution to have a separate baker's unit, but a baker's work table with bins for flour and sugar adjacent to the cook's unit and across from the ovens is desirable. A sink should be conveniently located to this unit, and a cabinet for bread storage is essential. Facilities for pan storage should also be provided, and a cooling rack may be needed. If the institution is large enough and the amount of baking involved warrants a separate bake shop, the following equipment will be needed: a cabinet for storage of supplies; refrigerator, cabinet for pan storage; baker's work table; mixer; ovens; facilities for top-of-stove cooking, such as a gas or electric plate; steam kettle; proof box; cooling racks; sink or sinks; and cabinets for bread and cake storage.

*Salad Preparation.* The space required will depend on the volume of work and the number of employees. The minimum equipment required is a sink, table, and refrigerator. If space permits and there is a sufficient volume of work, a two-compartment sink is advisable. The length of the table will depend upon the number of workers. A refrigerator is essential for holding the salads until serving time. This refrigerator can be equipped with runners for trays instead of shelves, and the size required will be determined by approximating the greatest number of salads to be stored at any one time. An ideal arrangement is to have the refrigerator placed adjacent to the service unit and to open on both sides so that the salads can be put in from the preparation area and taken out in the service unit.

*Special Diet Kitchen (Hospital).* Because of modern trends toward the use of the normal diet insofar as possible in diet therapy, a separate kitchen for the preparation of therapeutic diets may be unnecessary. Therefore, unless the demands for special food preparation are great, this unit may be omitted or a section of the main kitchen can be set aside for it. If a separate unit is required, the essential equipment will include a table, stove with oven, a refrigerator, and a sink. As the number and variety of diets increase, additional equipment will be needed.

### *Food Distribution*

*Tray Service.* In centralized tray service, the serving unit should be located in or adjacent to the kitchen and as close as possible to the cooking unit. It should also be near transportation and dishwashing facilities.

The space allotment will depend on the type of equipment installed for tray assembly. (More space will be required if a conveyor belt is to be used than for a simplified assembly unit in the main kitchen.)

There must be storage facilities for dishes, tray covers and napkins, salt and pepper shakers, sugar containers (unless individual envelopes of sugar are used), tray cards, card holders, and flat silver. The ideal method of tray assembly is to place these items on the tray at the time of service. If this is impossible, a cabinet must be provided to hold the trays after they are set up with the above items placed on them. If runners instead of shelves are used in this cabinet, more trays can be accommodated in a given space, and the cabinet is more easily cleaned. It is advisable that the tray storage unit be enclosed.

If a conveyor belt is installed, there will be a counter for the cold foods on one side of the movable belt and on the other side, heated compartments for the hot foods. Directly behind these counters and 3 to 4 ft. from them will be refrigerators and heated cabinets as well as such equipment as toasters and roll warmers. Dishes for hot food may also be stored in specially-built wells in the counter. A sink should be located in this unit.

If a conveyor belt is not used, a unit similar to a cafeteria counter with a tray slide will be needed. In a fifty-bed hospital it is possible to use the same cafeteria counter both for patient tray service and for personnel if meal hours can be conveniently arranged.

In the tray receiving stations on the floors, facilities for making coffee and tea and refrigeration for between-meal feedings may be desired.

In decentralized tray service, the floor serving pantries should be located directly above each other with direct access to an elevator or dumbwaiter. In the event of a horizontal layout, the serving pantries should be located so that the distance that food must be transported is as short as possible.

The actual size will depend upon the type and amount of equipment needed for the maximum number of trays that it is practical to serve from one unit. If heated trucks are used for the transportation of the hot food, space for the truck must be provided in the serving pantry as well as storage space near the main kitchen with a sufficient number of electrical outlets for all of the trucks. Storage facilities must be provided in the pantries for dishes, tray covers and napkins, salt and pepper shakers, sugar containers, tray cards, card holders, and flat silver. If the trays are set up before the serving time, storage must be provided for them. Other essential equipment includes: a cabinet for pre-heating dishes, a sink with drainboards, a small stove or hot plate, a refrigerator, a toaster, and coffee-making equipment. Dishwashing equipment will also be needed unless all dishwashing is centralized.

If trucks are used, the hot food can be served directly from them, but if a dumbwaiter is used, a steam-, gas-, or electrically-heated serving table will be necessary.

*Cafeteria Food Service.* The cafeteria service area should be as near the food preparation area as possible. The supply route from the kitchen to a cafeteria serving unit should be planned so that there is no cross traffic with personnel entering the cafeteria for service or leaving the dining room. There should be direct access to the dining rooms from the cafeteria. (It may also be advantageous to have the dishwashing room located so that each person can collect his soiled dishes and leave them there. This is helpful in times of personnel shortage.) The cafeteria and dining rooms should be accessible to all personnel and located where light and ventilation are adequate. Attractive dining rooms are important to employee morale.

In estimating the space needed for dining rooms, the following factors should be considered: the total number to be served, length of the serving period, and the seating arrangement. In hospitals and similar institutions, policies regarding the feeding of personnel will affect the total number to be served. The serving period may be long enough to allow for more than one sitting and small tables and chairs are generally used. In this type of situation estimates of space requirements, excluding serving space, will range from 12 to 15 sq. ft. per person served at each sitting. In school lunchrooms and industrial plants where a long table and stool arrangement is used, the required area will be smaller, approximately 8 to 10 sq. ft. per person seated. The cafeteria serving area is approximately one-fifth to one-seventh the size of the dining room. Its width should be at least 9 or 10 ft., which will allow for a 12-in. tray slide, a 24-in. counter, a 4-ft. aisle, and 2 or 3 ft. for a back bar and storage facilities. The length of this area will depend on the menu pattern, the number to be served, and the length of the serving period.

The serving counter should consist of facilities for trays; silver; hot foods, such as soup, meat, vegetables, and coffee; cold food such as salads, desserts, bread, butter, and cold beverages; and possibly dish storage. Dishes for hot food may be stored in specially constructed wells in the counter, under the counter, or in cabinets behind the counter. An ice cream holding unit built into the counter is convenient. A refrigerator is needed for the storage of cold foods, and runners for trays instead of shelves will increase its capacity. A table, cabinet, or drawers for bread storage and a toaster are also needed.

In the dining room, tables and chairs to seat the greatest number expected at one time will be required. Square tables for four usually lend themselves best to a satisfactory arrangement in any shaped room. Tray stands for receiving trays as they are emptied are desirable.

### *Dishwashing*

The dishwashing area should be near if not adjacent to the tray service area and the dining rooms for personnel. With a decentralized tray service, dishwashing facilities may be provided in the floor serving pantries. It has been suggested that 1 sq. ft. per person be allotted to the dishwashing area (3). If sufficient space is available so that all equipment can be placed away from the wall, it will greatly facilitate cleaning. Space will be needed for soiled and clean dish tables, a dishwashing machine, a sink or sinks, perhaps a glass washing machine, and one or more dish trucks. Some arrangement for pre-rinsing should also be provided. Dish tables are 24 to 30 in. wide, and it is recommended that 60 per cent of the space be allocated to soiled dishes and 40 per cent to clean dishes (3). The length of the dish machine will vary from 2 to 6 ft. A glass washer will take approximately 2 ft. There should be careful estimation of the expected load of dishes and plans for equipment made accordingly.

A mechanical dishwasher provides the simplest method for sanitizing or disinfecting dishes. However, for effective bactericidal treatment, provisions must be made for a supply of rinse water maintained

at a temperature of at least 170°F. In addition to the machine, counters for both soiled and clean dishes will be needed. The soiled dish table should consist of a counter for receiving soiled dishes, facilities for dish scrapping, racking, and some method of pre-rinse. This may be accomplished by use of a spray head over a sink designed for this purpose. A separate machine for washing glasses is not essential but may be desirable.

If hand washing is necessary, a three-compartment sink with drainboards should be provided. These sinks must be deep enough to allow dishes placed in metal baskets to be disinfected by immersion for 2 min. in hot water at a temperature of at least 170°F. or in a chemical sanitizing solution. If a chlorine solution is used, one compartment will be used for washing, one for rinsing, and the third for the chemical treatment. Pre-rinsing is also helpful in this type of dishwashing.

### *Pot and Pan Washing*

Facilities for pot and pan washing should be near the cooking and baking units.

Ventilation is, of course extremely important in this unit.

The space required is usually included in the kitchen area. It is recommended that, in a small institution, approximately $\frac{3}{10}$ sq. ft. per person fed be allotted to this unit (3). A three-compartment sink is advisable: for soaking, washing, and rinsing. The wash and rinse sinks should be approximately 24 by 24 by 14 in., while the sink for soaking may need to be slightly larger. Drainboards are also necessary. Thus this area will require at least 10 ft. in length. If this equipment is located along a wall, space should be allowed for cleaning between the equipment and the wall. Also there should be at least a 4-ft. aisle between this and other equipment. Space will also be required for pot and pan storage. A cabinet or portable rack may be provided for the storage of this equipment.

### *Cleaning Supplies*

Storage space for mops, pails, and other cleaning equipment should be considered in the kitchen plan. A section or sections may be designated for this equipment. The important factor is that provision be made for the storage of cleaning supplies and the washing and storing of mops in a well-ventilated area. The space required will, of course, be quite small.

### *Garbage Disposal*

The garbage disposal area should be near an outside exit, with the route from all of the units it serves as direct as possible.

There should be space for can washing, and it is recommended that a refrigerated area be provided for the storage of garbage. The amount of space required will vary in institutions of different size, but in institutions of less than 200 beds, it will probably range from 60 to 120 sq. ft.

Mechanical units for garbage disposal may be installed, but local sanitary regulations should be checked before such a decision is made.

### *Lockers and Rest Rooms for Employees*

Lockers and rest rooms should be provided for all employees. Separate facilities are not necessary for food service employees. The location should be convenient to work areas and near the employees' entrance. Handwashing facilities should also be provided in the kitchen area. It is recommended that approximately 8 sq. ft. per employee will be sufficient for this area (1, 2). This space will take care of lockers, showers, toilets, and rest rooms. Toilets and wash bowls should be provided in the proportion of one to every fifteen lockers (3).

### *Office*

No matter how small the institution, some desk space should be provided for the person in charge of food service. It is preferable that this be a separate room near the food production area. It is advantageous for the supervisor to be able to view the food production area from the office, but it is also desirable that the office be placed so that doctors and salesmen will have access to it without going through the kitchen. Even if the location is not ideal, it is important that some space be provided for planning, record keeping, and conferences.

The following recommendation has been made (3): "No room should have less than 90 sq. ft. of space, if it is to accommodate a desk, three chairs, a bookcase, and a file."

## STRUCTURAL REQUIREMENTS

*Floors.* In a food service department the floors should be of a material that is durable, easily cleaned, non-slippery, non-absorbent, and resilient. It is difficult to meet all of these specifications. A hard surface flooring seems to be the most satisfactory, particularly for preparation areas, even though it is likely to be slippery when wet and its lack of resilience produces fatigue. Quarry tile is recommended for kitchens, and asphalt, rubber tile, or inlaid linoleum for dining rooms. Inquiries should be made regarding new materials that may be available.

*Walls.* Walls should be smooth, washable, and impervious to moisture and have a cove base at the floor. All pipes, radiators, and wiring conduits should be concealed in the walls. For the kitchen, glazed tile is usually used to a height of 5 to 8 ft. Above this, plaster with washable paint can be used. Waterproof wall paper is also available in attractive patterns. It is preferable to extend the tile to the ceiling. The use of pleasing color combinations greatly improves the appearance of food service units.

*Lighting.* The proper amount and kind of light is most important in any area where work is performed. It is well to use as much natural light as possible for reasons of economy as well as the possibility of unsatisfactory artificial light. Although natural daylight is utilized, adequate artificial illumination should be provided for each area. For general lighting, an intensity of 20 foot candles is considered adequate, but 30 foot candles is recommended for working surfaces, which may be increased to 50 foot candles. For dining rooms, 10 foot candles may be sufficient (2, 4). Fluorescent lighting may be unsatisfactory over a cafeteria counter, as food sometimes takes on an unnatural color under this type of lighting.

*Soundproofing.* The use of soundproof materials in the construction of the ceilings in food service units will reduce appreciably the noise in this area. A thorough investigation of all possibilities and devices for noise reduction should be made when construction is contemplated.

*Ventilation.* Proper ventilation of food storage rooms is important as these rooms should be kept cool. Kitchens, particularly in the cooking, dishwashing, and pot washing areas are likely to be most uncomfortable because of excessive heat and high humidity. Great strides have been made in artificial ventilation and air conditioning, and expert advice on this subject should be sought when new construction is planned.

## SELECTION OF EQUIPMENT

The amount and type of equipment purchased will depend on various factors, such as the size of the hospital, the menu pattern, the type of food service, the financial resources of the institution, and the possibilities of future expansion. Certain basic equipment is essential, but available space and funds will determine other desirable equipment to be purchased. After the quantity and type of equipment is decided upon, consideration should be given to the size required; material; and construction as to durability, safety devices, and sanitary features, as well as ease of operation. Reliable equipment manufacturers will furnish detailed information on all types of equipment. Suggested equipment lists for hospitals of 25 to 200 beds may be obtained from the Division of Hospital Facilities, U. S. Public Health Service (5).

The following points should be considered in the selection of certain general types of equipment:

1. Electrical equipment.
   a. Check whether equipment requires direct or alternating current and compare with type of current available.
   b. Check voltage required.
   c. If a motor is involved, check the horse power and whether the motor is single- or three-phase.
   d. Check heating element for voltage.
   e. Check possibilities of service.
   f. Equipment should be approved by the Underwriter's Laboratory.
2. Gas equipment.
   a. Check with gas company on the adequacy of gas service line.
   b. Check possibility of service.
   c. Equipment should be approved by the American Gas Company.
3. Steam equipment.
   a. Compare steam pressure required with pressure available.
   b. Check equipment for safety valves.
   c. Pressure regulators should be used on all steam fixtures for they will reduce fuel consumption and will also regulate the temperature.
4. Refrigeration.
   a. Multiple compressors are preferable to a single compressor for several refrigerators. This is a safeguard against complete shutdown.
   b. Floor drains should be connected to an outside drain so that there is no danger of back siphonage of sewage.
   c. There should be provision for sufficient humidity in the refrigerator to prevent the drying out of foods.
5. Dishwashing equipment.
   a. Determine the correct size based on the expected load of dishes per hour.
   b. Sanitary design is a most important factor, and there should be no possibility of back siphonage of water.
   c. Provision should be made for a supply of rinse water, the temperature of which is at least 170°F.

## PLACEMENT AND CARE OF EQUIPMENT

After the general area for each unit of the food service department has been determined, a careful study should be made of the work to be performed in that unit. Such a study will indicate the most convenient place for each piece of equipment.

The cook's unit can serve as an example. The raw food will be assembled on the cook's table. Supplies, such as seasonings and other staple articles, should be within reach. There should be a sink in this area for a convenient water supply. Pan storage as well as space for mixing spoons, measuring cups, and other utensils should be nearby. The cook's table itself should be directly opposite or adjacent to the cooking facilities. In other words, as the cook assembles materials she should not have to walk back and forth. Each motion should complete a part of the procedure, and she should move in one direction insofar as possible to complete her task.

Even though well constructed equipment made of

the best material is purchased, it will deteriorate rapidly unless it is operated correctly and maintained properly. It is the supervisor's responsibility to see that employees are instructed in the operation and cleaning of the equipment they use and that needed repairs are made promptly. If the institution's engineer can establish a schedule for routine checking of equipment, many serious breakdowns will be avoided. Printed or typewritten instructions posted near each piece of equipment will help to remind employees of the correct procedure. Most equipment manufacturers furnish instructions on the cleaning and care of their own equipment. Detailed information on the care of materials most commonly used for institutional equipment as well as instructions in the care of specific pieces of equipment have been published (6).

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## New Beef Grades

Federal grade standards for steer, heifer, and cow carcasses have been revised and the new standards became effective on December 29, according to the Production and Marketing Administration of the U.S. Department of Agriculture.

The change includes: combining the present "Prime" and "Choice" beef grades under the name of *Prime*; renaming the present "Good" grade as *Choice*; and setting up a new grade to be called *Good* which will consist of beef from the higher quality young cattle now graded "Commercial." Beef from older cattle will continue to be graded *Commercial*, and the grade revisions will not affect the standards for *Utility*, *Cutter*, and *Canner* grades.

It is believed this revision will make the grades more useful by reflecting beef production practices and consumer preferences. The higher quality young beef now graded "Commercial" is popular with a large segment of the population, and it is felt that its identification as a separate grade will be beneficial to both the producers and consumers. By combining "Prime" and "Choice" grades, the new grade *Prime* will become a more important factor in meat grading, as less than ½ per cent of our total beef production qualifies for the present "Prime" grade.

The Department of Agriculture emphasizes that the shift in beef grade names should have no effect on price, since prices are determined by relative demand for different kinds of beef rather than by grade designations. In general, the new grades are:

*Prime* (a combination of present "Prime" and "Choice" grades): excellent quality beef with a wide selection of cuts suitable for broiling and roasting.

*Choice* (formerly "Good" grade): high quality beef which will usually be leaner than *Prime*. Cuts will be juicy and tender with a desirable flavor, and many cuts may be broiled or roasted.

*Good* (formerly "Commercial" grade): relatively tender beef with a high ratio of lean to fat, providing consumers with economical meat dishes.

*Commercial* (remainder of the present "Commercial" grade): beef from mature animals, with a more pronounced beef flavor than that of the *Good* grade. Cuts will require different methods of cooking because of less natural tenderness, but they will provide many economical meat dishes.

# What Are Cleaning Materials? How Do They Work?[1]

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THE newest things are sometimes the oldest. Every dietitian must feel this way, as she observes the almost daily appearance of *new* soaps, *new* synthetics, *new* detergents. And it must be chalked up as one of the wonders of chemistry, I suppose, that there can be so much newness—and much of it actually is new—in a field so old.

Soap is no new thing. Among manufactured or prepared articles other than food, raiment, and shelter, it is probably one of the oldest. Jeremiah speaks of soap in a way that indicates the acceptance of soap as a common-place, not a new discovery even in those olden times. In the book called Malachi, soap is mentioned again. And even though these Old Testament "soaps" may have been preparations that would not even look like soap to us twenty-five or thirty centuries later, they do at least show that people have been concerning themselves with soaps and cleaners for a long time—and surely they will continue to do so into the farthest foreseeable future.

Dietitians faced with the responsibility of selecting products which are functionally and economically most desirable, and then using those products to greatest effect, do not need to be soap or detergency experts in the laboratory sense. One doesn't even need more than a nodding acquaintance with the principal ingredients of soaps and cleaners. However, much worry and confusion regarding the whole subject may be avoided if we know first, the various parts of the act of cleaning and second, the six general classifications into which all imaginable cleaning substances can be grouped. With this much background, you will be able to do your own thinking and deciding, your own assaying of claims and statements, and so have the comforting confidence that comes from knowing why you are handling various sanitational operations in the ways that you are.

My purpose, therefore, is to discuss two related topics, giving a skeleton framework which, with your background of training and experience, you will be able to clothe with the facts and opinions most useful to you. These topics are: "How Do Cleaning Materials Work?" and "Types of Cleaning Materials." As time goes on, you will be able to add to or change these outlines as new or newly pertinent data become available. But never will you need to go back and start all over, because these outlines are basic.

[1] Presented before the Rochester, New York, Dietetic Association in March, 1950.

## How Do Cleaning Materials Work?

### *Wetting*

Don't associate this too closely with new synthetics, "soapless soaps," and the like. The oldest, the commonest, and still for many purposes the best wetting agents are the various true soaps.

Wetting means the ability to bring water intimately in contact with grease or with greasy or otherwise water-repellent surfaces, so that the greasy soil can be removed. It is perhaps easier to define wetting as what it isn't, than what it is. Wetting, for example, is the *opposite* of the bead of dew on a waxy rose petal; it is the *opposite* of water running off a duck's back; it is the *opposite* of the sharply delineated oil slick on a wet pavement; it is the *opposite* of inadequate dishwater sliding unamicably across and over, instead of into and under, the lamb chop grease on a cold dinner plate.

Water does not wet greasy soil. Until you do wet such soil, you cannot readily remove it. Therefore, the cleaning material you use must contain wetting agents capable of doing the positives of the undesirable negatives listed in the preceding paragraph. These wetting agents may be soaps, or they may be synthetic organic detergents or wetters. These synthetics are usually better than soaps in hard water. They are available in a variety of types with different and specific wetting characteristics. Most of them form a quick suds, but often a fragile and a fleeting one, although proper compounding partly compensates for this in many good products.

### *Emulsifying and Suspending*

Fill a milk bottle half full of water and pour in an inch of salad oil. The oil will float as a separate layer. Now shake vigorously and you will have, for a mo-

ment only, a milky "solution" which is an emulsion consisting of tiny droplets of oil scattered through the water. Let the bottle stand briefly, and the oil will rise to the surface again. In other words, the emulsion produced was not lasting because nothing had been done to lessen the natural oil-water antipathy. Now add a wetting agent, or an alkaline or colloidal emulsifier, which will lower the tension between the oil and the water, and shake again. The emulsion now formed will last much longer, and it will drain cleanly from the glass, instead of leaving oily smears. In short, you can now wash the oil away cleanly and without too much difficulty.

If the soil consists of solid materials, rather than liquid oil, somewhat the same taking up of the soil into the soil-removal medium occurs by peptizing or dispersion or deflocculation, and then the soil is said to be suspended rather than emulsified. Obviously, in removing soil from a china dish, both of these actions and others as well come into play.

### *Saponification*

Soap is made by heating a fat or oil with a water solution of an alkali—the process known as saponification. In a dishwashing machine, exactly these conditions exist. However, food soils consist mostly of the relatively difficultly saponifiable neutral oils—not the much more readily reactable deglycerinized oils, called fatty acids. A good dishwashing compound contains none of the caustic alkalies normally used in actual soap boiling, but only milder and, for this purpose, safer and more desirable alkaline salts. Therefore, the conversion of the oils of food soil into soap starts slowly, then proceeds more rapidly as more and more nascent soap accumulates in the water. Oil and grease thus saponified into soap is removed automatically. If the dishwashing compound is formulated for proper water hardness control, thus keeping this soap from being immediately precipitated as insoluble calcium soap, it helps to wet and so to remove other soils.

Whether saponification is a major or only an incidental part of a given washing operation depends on the job conditions. In a dishwashing operation, for example, if scrapping is well done and if a safely non-caustic compound is used, saponification plays a relatively minor role, particularly in single tank machines where much of the grease will be flooded to the sewer before it has time to be converted into soap.

### *Peptizing*

This action, sometimes also referred to as deflocculation, is a difficult one to define. It means the breaking up of solid soil into very small particles which are then lifted into the cleaning menstruum and held until they can be rinsed away. Successful accomplishment of this drives away the fear of redeposition which is the arch enemy of good cleaning. For good cleaning, soil must, of course, be carried completely away, not merely moved from one spot to another on the work-piece.

Various sodium silicates are highly important in accomplishing this action. Certain of the higher polyphosphates, in addition to their usefulness in holding the lime and magnesia of hard water in solution, are specifically effective in aiding in this removal of solid soil.

### *Water Hardness Correction*

The lime and magnesia control ability just referred to is a vitally important function of most of the polyphosphates. To see the importance of this, stir a teaspoonful of ordinary trisodium phosphate ("TSP") into a glass of average hard water. Take a little of this solution out and shake it with a few drops of liquid soap, and you will find that it forms a good and a lasting suds, *but*, the original solution itself is muddy and murky and will throw down a sticky sludge deposit if allowed to stand.

Do the same with a polyphosphate—sodium tripolyphosphate, for example—and notice that once again the water is effectively softened, but remains crystal clear. The lime and magnesia have been wrapped up or "sequestered" inside a massive sodium calcium phosphate molecule which remains water-soluble, instead of being thrown out of solution as insoluble calcium phosphate.

Obviously, dishes, fabrics, floors, or anything else washed with the muddy liquid will tend to rinse poorly and will be dull and stained. Those washed with the clear, sequestered solution will be filmlessly clean. Even the iron salts in water, tinctorially responsible for most of the ugly brown to green to gray stains on imperfectly machine-washed dishes, are picked up and held by these polyphosphates (when properly compounded with other ingredients) and so the staining is greatly lessened or even eliminated altogether.

Unfortunately, the best polyphosphates are somewhat expensive, as compared with TSP, silicates, and the like. However, the correctly polyphosphated compounds produce dishes that are so much cleaner and eliminate bacteria-breeding places so much more effectively that they prove richly worth their higher cost, and more.

### *Heat*

The washing equation, no matter what the job, includes various factors: detergent + time + flow of solution + wetting, emulsifying, and then *plus heat.* Nearly all cleaning operations are accelerated by heat. Solid fats are melted to liquid oils and thus are emulsified more readily. Saponification increases tremendously at higher temperatures. The chemical activity of most cleaning compounds is much greater in hot than in cold solutions.

Contrary to some opinions, decidedly hot dishwater, at least up to 165°F., does not "bake food on" the dishes or silver going through a spray-type dishwasher. In a good operation, the ware will have been mechanically or hydraulically scrapped before it goes into the machine, so there is little except greasy soil still clinging to it, and that certainly will not bake on. Furthermore, the hydraulic impact of the solution striking the dishes entering the machine will knock off most gross soil before this hypothetical baking could occur. Higher temperatures definitely improve the operation under such conditions, and at the same time dramatically reduce bacterial counts.

#### Types of Cleaning Materials

Certain definitions have not yet become well stabilized, but we take "detergent" to mean, functionally as well as philologically, anything that washes. Water, soap, naphtha, "wetting agents," dishwashing compound—all are detergents.

The newer synthetics are, at least in this classification, "synthetic organic detergents." Remember, however, that some of these are really good wetters but poor detergents; some are good emulsifiers only; some are all three; some, unhappily, are none! There are certain classes of synthetics as there are, for example, certain classes of people. But just as with people, not only do the classes differ greatly one from another, but the various members of a single class are nearly as individual as would be so many individual members of a given human class. It is a sad mistake ever to think that "all synthetics are more or less alike." There is no democracy in chemistry.

With this prologue, let's see how simple and convenient it is to group detergents of all conceivable types under six headings.

*Soaps*

The first "S", soaps, needs little more comment, except for us to realize that soaps are becoming steadily more selective. Just as a certain kind and shape of knife may be selected for cutting a given food substance, so a certain titre and solubility of soap may be selected as the most effective for cutting a given soil.

Of course, soaps are often blended or augmented with synthetics or alkaline materials for specific improvement. Sometimes, then, one plus one will add up to three, in that a combination of materials proves more potent than would even greater total amounts of any one of the ingredients by itself. This is the effect referred to as synergism.

*Alkalies*

The first "A" covers alkaline materials, including machine dishwashing compounds, many alkaline floor cleaners, laundry sodas, and water softeners. Even caustic soda itself finds some use, as for example in drain cleaners.

This is one of the biggest and most confusing groups. Research goes forward steadily and productively here, because while there are only a few suitable alkaline salts, there are almost innumerable soaps, synthetics, solvents, and even diluents which can be added to these.

*Synthetics*

The second "S" covers synthetics. The newer ones of chief interest now can be broken down into three types: cationic, nonionic, and anionic. These tags refer to the type of ionization produced in solutions and assumed to be responsible for the characteristic action of the material. The cationic synthetics are generally good bactericides but not particularly good detergents. Quaternary ammonium compounds are in this class. The anionic materials are often good wetters and good detergents, as represented by the sodium alkyl aryl sulphonates. The nonionics, usually liquid, often excel as wetters, sometimes as foamers. Think of these synthetics, therefore, as wetters, detergents, or germicides, sometimes two out of three, but seldom if ever all three.

*Abrasives*

The second "A" stands for abrasives. The old sand-and-ashes regime lasted for several thousand years and well into the nineteenth century, when it was supplanted by scouring powders made of alkali, soap, and a finely powdered grit or abrasive. For the past fourteen years, this in turn has been losing out (institutionally to an overwhelming extent, domestically somewhat less) to the new paste- or cream-type cleaners which make possible the incorporation of liquid grease wetters, skin emollients, and other materials. These modifications account for the present great preference for paste rather than powder cleaners for scouring metal, tile, porcelain, and other sanitary or culinary fixtures.

*Solvents*

This third "S" is for solvents (as in dry cleaning) not forgetting, of course, water.

*Acids*

This final "A" is for acids, such as the powdered acid toilet bowl cleaners so widely used. In certain industrial cleaning fields, this paragraph would be greatly expanded. From a dietitian's viewpoint, however, not much more need be said on this score.

It goes without saying, I hope, that relatively few cleaners will be one simple "S" or one simple "A." Most will be S + A or S + A + S or various other groupings. Nevertheless, a clear picture of these six possible classes should help to show the general types of compounds to be encountered.

A study of the two foregoing main topics should make any dietitian as much an expert in this field as she has need to be in order to feel secure in her judgments and safe in her decisions.

There is some excellent study material available, particularly in the field of dishwashing. One piece, even though now a little out of date, is "Methods of Sanitizing Eating and Drinking Utensils," by John Andrews, (Reprint No. 2574 from the *Public Health Reports*). This is available from the Superintendent of Documents, Washington 25, D. C. Worth reading, too, are Research Bulletins No. 1 and No. 2 of the National Sanitation Foundation, Ann Arbor, Michigan, summarizing the studies of Dr. W. L. Mallmann and others.

Some immediately helpful material is published by the various soap and chemical manufacturers for the users of these materials. There is really no way for a dietitian to keep herself abreast of new developments except by thoughtfully reading such advertising releases. The foregoing outlines should help to make such reading soundly critical, while avoiding the mistake of a frigidly skeptical attitude. New developments are multitudinous. Most of them are of little interest, but some of them are of tremendous importance, and the dietitian who closes her eyes to these things will find her cleaning problems becoming more and more onerous from year to year, instead of less and less troublesome.

## The Sandwich—An Age-Old Food

Origin of the sandwich, according to the American Institute of Baking, cannot be definitely established, although many theories have been suggested. Some believe that sandwiches are as old as bread itself, and that they were the inspiration of the first man or woman who placed a wedge of meat between two slabs of bread. Others claim that this combination also was served at the banquet tables of the Greeks and Romans. There are also stories of priests of the pre-Christian era dining upon sacred wafers with honey. However, various writers move the birth of the sandwich up to the year 50 A.D. and claim it was invented by a Jewish teacher, Rabbi Hillel, who used it as part of the Passover observance.

However, even though this food was enjoyed for so many centuries, the name by which we know it today is of comparatively recent origin. During the latter part of the eighteenth century, the fourth Earl of Sandwich was one of the most prominent figures in British politics. He served as First Lord of the Admiralty twice. However, Lord Sandwich was more interested in gambling than in the affairs of state. He would sometimes sit at the gaming table for 24 hr. at a time and become so absorbed in the contest that he would refuse to stop to eat. One day, the Earl asked his servants to bring his meals in the form of meat between layers of bread. In this way he could eat with one hand and hold his cards with the other without interfering with the game. Other gamblers at the table saw the out-of-hand meals the Earl was eating and ordered the same thing for themselves. It might be presumed that it became so common for gamblers to ask for "the same as Sandwich" that the food became known as a "sandwich."

## Southeast Asian Fish Requirements and Production

The amount of fish protein food available to the people of Southeast Asia averages only about a third of what they should be eating daily. This estimate was reported at a recent meeting of the Indo-Pacific Fisheries Council of the Food and Agriculture Organization held at Cronulla, Australia.

The average commercial landing of marine fish in Southeast Asia, according to the report, provided about 25 gm. fish protein daily for each person. Other sources, including freshwater fish farming, helped to bring average consumption up to an estimated 42 gm. per day. This is about a third of the 125 gm. fish protein per day suggested as ideal.

It was pointed out that countries which are members of the Council contain a large part of the world's population, and that feeding these people is a matter of great urgency. The fact that so many of these people depend on fish, rather than meat, for their animal protein supply accentuates the importance of the role which the fishing industry plays.

Fish production in the area, though inadequate in relation to the number of people, is nevertheless large. Production is achieved by an amazing diversity of boats and types of fishing gear. After it is landed, the catch is dealt with in a wide variety of ways, from the sale of live fish to the conversion of fish into a clear, almost colorless, protein-rich fish sauce. These methods involve considerable ingenuity and skill, and much can be learned from a study of them. But there is no doubt that the fishing industries of the region could be expanded by the introduction of new methods and equipment, which can generally be described as "mechanization."—*From Economic and Social Problems in the United Nations 2: 4 (Sept.), 1950.*

# Limitations in the Use of Dietary Standards

## Differences in American, British, and Canadian Standards

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IN 1948 a Committee on Nutrition of the British Medical Association was preparing a statement on the nutritional requirements of man (1); the Food and Nutrition Board of the United States National Research Council revised its Recommended Dietary Allowances (2); and the Canadian Council on Nutrition developed a new Canadian Dietary Standard (3). Since these three sets of figures were being prepared simultaneously, it is fair to compare them, even though they have appeared in print at different times.

This article lays stress on the *use* of these dietary standards rather than on either the data or the opinions that have gone into each. All three are based of necessity on the available published data. All three stress the fact that the published data do not extend far enough over the field of human dietary requirements to substantiate tables as complete as those presented. All three admit that opinions, often differing and sometimes unreconciled, were used in the adoption of some of the figures. But it is in other statements that the real differences become clarified. These statements are related primarily to the uses of the tables and suggest that the figures have been developed according to the use expected. In fact, as Crampton has pointed out (4), the chief differences come from "a difference in the philosophy underlying the nature and purposes of Feeding Standards."

### INTENDED USES

The use intended for a standard has always influenced the choice of figures. Leitch (5) reports that in 1862, Dr. E. Smith set up a dietary standard in terms of carbon and nitrogen "to avert starvation diseases" among unemployed cotton workers.

In 1918, Lusk prepared a statement (6) on energy requirements "as a basis for American exports of foods."

Leitch further points out (5) that ir 1933, the British Medical Association set up a committee to prepare a standard for "unemployed," and in 1933, Stiebeling in the United States suggested the first standard to include figures for certain minerals and vitamins, and introduced the word "optimal" in order to provide a basis for agricultural production.

In 1935, the Health Organization of the League of Nations reported on the "Physiological Bases of Nutrition," as a result of interest in feeding practices for unemployed in various countries.

In 1938–39, the Canadian Council on Nutrition produced a standard "which could be used as a basis of comparison when computing whether lists of foods would contain the necessary components in sufficient amount to furnish an adequate diet."

In 1941, the Recommended Dietary Allowances of the Committee on Food and Nutrition of the United States National Research Council were evolved and released (7) "as a guide for adequate nutrition for the civilian population of the United States." These were later published as an official publication of the National Research Council in 1943 (8), and they have subsequently been revised twice—in 1945 (9) and 1948 (2)—but the aim has remained the same.

There is a defined purpose associated with each standard, and the purposes have become successively broader and broader in concept, both as to the quality of health and to the number of people included. In the process, the standards have progressively become more and more difficult to apply accurately to any particular individual or situation. It is on these philosophical points that our attention must be focused, in order that we may understand the present situation.

### AIMS OF THE 1948 STANDARDS

The Recommended Dietary Allowances are "levels of nutrient intakes which the Food and Nutrition Board recommends as normally desirable goals or objectives" (2). They "are not called 'requirements' because they are intended to represent not merely the literal (minimal) requirements of average individuals, but levels enough higher to cover substantially all individual variations in the requirements of normal people." Such an aim necessitated the use of figures "generally higher than average require-

ments," and the amount higher is called a *margin of safety* "designed to permit additional benefits as well as to cover individual variations. . . . In most categories this factor of safety for the average person is estimated to be approximately 30 per cent."

The British Medical Association's figures (1) "are believed to be sufficient to establish and maintain a good nutritional state in representative individuals of the groups concerned." They "concern the needs of healthy individuals," not the sick or convalescent. On practical grounds, the Committee abandoned "requirements" in discussing protein; there is also an increased number of categories in the calorie requirements related to occupation.

The Canadian Dietary Standard (3) "is recommended as a basis for planning food supplies for individuals or groups, except where clinical observations or tests have established particular or special food requirements." They "can also be used to assess the amount of each nutrient provided by a diet for an individual or for a group of people." Finally, they "indicate a nutritional floor beneath which maintenance of health in people cannot be assumed." The Canadian Standard further says: "Factors other than age, sex and activity affect nutrient needs; among those not ordinarily quantitatively considered in dietary standards for humans is *body size*. . . . A dietary standard so constructed that full consideration can be taken of size *will be more specifically applicable to an individual.*" This concept is well established in feeding farm animals and receives wide support throughout biology. "The standard here presented has been especially based on the concepts of size, and of maintenance plus work."

In Table 1 are compared figures from each of these three new standards. That the use of a standard influences the choice of figures is emphasized by including a column on United States Army Requirements and a column on the United States Food and Drug Administration.

### AVERAGE REQUIREMENTS

The second column in Table 1 gives figures calculated from the statements in the booklet on Recommended Dietary Allowances regarding margins of safety, including the following:

*Calcium:* "These investigators found that 11 of 16 subjects gave results indicating that 10 mg. of calcium per kilogram of body weight would suffice for equilibrium, while the remaining 5 subjects would require somewhat more. Using the 10 mg. per kg. value, a 70 kg. average man would need 0.7 gm." The allowance was set at 1.0 gm. per day; "this covers the needs of all but one in one hundred of the normal adult population."

*Iron:* "Increased by 50 per cent to attain a standard allowing a margin of safety."

*Thiamine:* "The minimal requirements for adults may be stated as 0.23 mg. or more for each 1000 Calories. . . . It was decided to provide as a factor of safety an allowance of thiamine approximately 100 percent more"—or 0.5 mg. per 1000 calories.

*Riboflavin:* "The preceding studies suggest that this would require approximately 20 micrograms per kilogram per day," or 1.4 mg. for a 70-kg. man; "the allowances . . . have been set at 1.8 mg."

*Ascorbic Acid:* "Approximately one-third to one-fifth of the values given" afford protection from gross signs of scurvy. "But it is difficult to state precisely what concentration of ascorbic acid in the plasma or blood cells, or what excretion level should be considered 'optimal.' " The U. S. Army Technical Manual 8-501 (10) simply says: "The Army minimum allowance of 50 milligrams of ascorbic acid, which experience has shown to be sufficient for troops . . ."

TABLE 1

*Comparison of United States, British, and Canadian dietary standards for calories and certain nutrients for a sedentary man weighing 154 lb.*

| NUTRIENTS | U.S. RECOMMENDED DIETARY ALLOWANCES (2), INCLUDING MARGIN OF SAFETY BUT NOT ADJUSTED FOR WEIGHT | U.S. RECOMMENDED DIETARY ALLOWANCES LESS MARGIN OF SAFETY | BRITISH DIETARY STANDARDS (1), NOT ADJUSTED FOR WEIGHT | CANADIAN DIETARY STANDARDS (3), TO BE ADJUSTED FOR BODY WEIGHT | U.S. ARMY MINIMUM DIETARY REQUIREMENTS (10), NOT FOR A SEDENTARY MAN | U.S. FOOD AND DRUG ADMINISTRATION MINIMUM REQUIREMENTS (11), ACTIVITY NOT STATED |
|---|---|---|---|---|---|---|
| Calories | 2400 | — | 2250 | 2476 | 3600 | — |
| Protein (gm.) | 70 | Said to have a "reasonable margin of safety" | 66 | 67 | 100 | — |
| Calcium (gm.) | 1.0 | 0.7 | 0.8 | 0.7 | 0.7 | 0.75 |
| Iron (mg.) | 12 | 8 | 12 | 6 | — | 10 |
| Vitamin A (I.U.) | 5000 | 5000 | 5000 | 5000 (as carotene) | 5000 | 4000 |
| Thiamine (mg.) | 1.2 | 0.60 | 0.90 | 0.75 | 1.6 | 1.0 |
| Riboflavin (mg.) | 1.8 | 1.4 | 1.4 | 1.2 | 2.2 | 2.0 |
| Niacin (mg.) | 12.0 | 6.0 | 9.0 | 7.5 | 16.0 | — |
| Ascorbic acid (mg.) | 75 | — | 20 | 30 | 50 | 30 |

The British give only 20 mg. as the amount of ascorbic acid required and evidently feel that this affords a little extra, because reference is made to curing scurvy with 10 mg. The Canadian standard also refers to the 10-mg. level in adults but points out that about three times more than the anti-scorbutic level is required in growing guinea pigs for normal tooth development. The Canadian standard of 30 mg. implies no safety factor, but a minimum of proved value, apparently sharing the British view regarding a lack of "trustworthy evidence."

Both the Recommended Dietary Allowances and the British Medical Association's standard refer to "average" or "normal" requirements. To the Allowances is then added a margin of safety to cover the highest requirement likely to be met in the population. As explained in the original booklet, and elaborated by Wilder (12) and others, many *people will "remain in health through long periods" although receiving less than the Recommended Dietary Allowances.* On the other hand, the British Committee stuck to averages, and says "in every group there must be cases where the need for one or other nutrient is greater than that of the average."

The Canadian Standard has been built up in a different manner, supposed to approximate the requirements of individuals more nearly than the other two, by working out all requirements that can be so treated *on the basis of body size.* "Most of the variation between individuals within groups homogeneous as to age is traceable to differences in the sizes of these individuals." Therefore, if tables are set up on the basis of size or weight, you have taken care of this cause of the well-known fact that one individual has a different requirement than another. To this extent, the need for a "margin of safety" has been removed, and allowance is made for the British worry over "cases where the need is greater than average."

Only time and further research can tell how far the problem of individual variation is solved by the removal of variations due to diversity in body weight, but it appears that important new principles have been introduced in the new Canadian Standard, over anything previously attempted. It must be reiterated, however, that these principles are new only in the sense of application to standards for human beings, since they rest on the most basic observations in nutrition by men like Voit, Rubner, Lusk, Benedict, Dubois, and others, and since they have been applied for years in animal feeding standards.

## "SUPER-HEALTH"

The difference in philosophy mentioned above concerns the use of: (a) an average requirement, (b) an average requirement plus a margin of safety to describe the highest need of anyone, or (c) the use of variations in body size in order to extract the probable cause of the individual variations in needs.

A second difference in philosophy is also apparent, namely the use of a margin of safety "to permit additional benefits." This statement about the Recommended Dietary Allowances is elaborated only in rather general terms and leaves the impression that a generous "goal" will provide for any extra health that may be possible by nutrient intakes above levels so far established experimentally. It seems to be influenced in part by the natural desire not to miss out on anything, in part by the observed fact that stresses such as illness and injury may make sudden and large increases in nutrient requirements and in part by wastage that occurs before food is eaten. Whatever the influencing factors, it is clear that such margins go beyond the apparent requirements and the evidence of the moment. As *goals* in planning food production or dietaries, they have a place, but as criteria for evaluating individual or group dietaries or for similar purposes they can lead to misinterpretation and misuse (12).

Additional amounts of nutrients for a hypothetical "super-health" can be added on, if desired, to either the British or the Canadian standards, but both these groups have rather bluntly refused to do so. Statements appear in the British report such as: "The Committee was unable to find any trustworthy evidence that maintenance of saturation of the blood with vitamin C was desirable in the interests of health." The Canadians say: "While it is not possible at present to state whether harm results from excesses of vitamins, minerals and other nutrients (except for calories), the provision of excess supplies is certainly undesirable at the present time in view of the urgent need for food in many parts of the world."

## USE AND MISUSE

"Some persons who receive less than the recommended allowance of one or another nutrient may remain in health through long periods. . . . Persons whose consumption equals or exceeds the goals are presumed to be adequately nourished. . . . The recommendations are . . . levels enough higher to cover substantially all individual variations." These statements about the Recommended Dietary Allowances can be analyzed mathematically by well-established methods of general biologic application. When the number of individuals requiring specified amounts of a particular nutrient are plotted, they form a curve with a "hump" and they trail away at each extreme. From a knowledge of the position of the "hump," it is possible to calculate a figure that will "cover substantially all individual variations." Such a procedure has been recommended (13) as an approach to dietary standards when sufficient data are available. For the moment, it is only desired to point out that if the allowance covers all individual variations, then *most* people need less than the figure given, and *some* people need substantially less.

It is, therefore, with good reason that repeated statements have been made that "the Allowances do not provide a basis for judging nutritional status of populations" (2), or "the false assumption that failure of a diet—any diet—to provide the nutrients in the table, in the quantities recommended was *ipso facto* evidence of dietary inadequacy, or still worse of nutritional abnormality" (11).

In contrast to this, the British figures, being called averages, are to be interpreted as a standard with which to compare a diet. If the diet meets the standard, the person concerned has a fifty-fifty chance of being well-nourished. The Canadian figures claim even more direct relation to individual requirements, both as a result of the use of body size already discussed, and the discussion on "maintenance." "The figures can further be used to indicate a nutritional floor beneath which maintenance of health in people cannot be assured."

SUMMARY

At least four purposes for dietary standards are apparent from this discussion:

(a) For use in calculating the nutrient requirements of a population in connection with a national food and nutrition policy for health.

(b) For use in evaluating the dietary status of a group of people from the total and average quantities of foods eaten, or in providing foods for such a group.

(c) For use in establishing regulations under a food and drugs act governing the contents of foods, dietary supplements or drugs and of allowable claims for them.

(d) For use in evaluating the dietary status of an individual from the foods eaten or from the foods purchased.

It may be doubted whether any one set of figures could be used properly for all these purposes.

In formulating the standards in Britain, Canada, and the United States, the workers all agree that in our present state of knowledge no table can be constructed on complete, well-established evidence. There is also agreement that tables have an air of precision and finality which is not only false but may permit misuse. An important aspect of all three standards is that they are intended for normal healthy people, and not for ill or injured; this is a special limitation in view of the possible extent of conditioned malnutrition (14). Most important is the fact that the basic figures in all three standards seem to be fundamentally similar, although small differences are found.

Most of the differences that exist are considered to derive from different uses for which each standard is intended with the attendant speculations associated with each use. In this field, the Canadian standard seems to represent a closer approach to the individual than the others, as a result of the new approach in human standards involved in extracting the variations due to diversity in body weight.

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## B-Complex Requirements

After investigating the human requirements of B-complex vitamins for five years, Dr. M. K. Horwitt of the University of Illinois College of Medicine and Drs. Erich Liebert, Oscar Liebert, Oscar Kreisler, and Phyllis Wittman reach the conclusion that the behavior of the mentally infirm deteriorates if there is a deficiency of B-complex vitamins. On the other hand, there is no evidence that a generous provision of these vitamins is of benefit in the treatment of mental disease.

It was soon apparent that vitamin B requirements of the aged were only slightly, if at all, distinguishable from those of younger adults. Later, sensitive methods were developed to detect the earliest stages of vitamin B deficiency. The old seem to be less resistant than the young to the ill effects of diets low in the B vitamins, but more proof is needed.—*From New York Times, September 24, 1950.*

# Dielectric vs. Stewpan Cookery[1]

## Comparison of Palatability and Vitamin Retention in Frozen Peas

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IN RECENT years there has been an increasing interest in the cooking of foods with ultra high frequency heating devices, particularly in hotels and restaurants where the speed of cooking is of importance.

At the time this study was initiated, no studies were found in the literature on the retention of nutrients and of palatability in vegetables cooked by ultra high frequency, or dielectric waves, as compared to retentions after standard methods of cooking.

More recently palatability ratings of several vegetables cooked in a dielectric range and in a covered stewpan were reported by Bollman *et al.* (1). Although the dielectrically cooked peas were rated lower in palatability than peas cooked in the stewpan, the difference was slight. A crispness of texture was noted in the frozen peas prepared in the dielectric range which did not decrease when the cooking time was increased.

Proctor and Goldblith (2) reported appreciable savings in ascorbic acid in five vegetables, including peas, blanched in a dielectric range prior to freezing. The savings were especially notable in spinach and carrots.

In a continuation of the earlier report on palatability by Bollman (1), broccoli, cabbage, carrots, and potatoes were cooked by three methods (3). No significant differences in the retention of ascorbic acid, thiamine, or riboflavin were observed in stewpan and dielectric cooking.

Since cooking with ultra high frequency is strikingly different from standard cooking methods, this study was undertaken to compare the retention of ascorbic acid, thiamine, riboflavin, weight loss, and palatability during the cooking of commercially frozen peas in a dielectric range and in a stewpan. Difficulty was encountered in cooking the peas uniformly in the dielectric range. Therefore, the retention of the most sensitive nutrient, ascorbic acid, and palatability in commercially frozen peas cooked to three stages of doneness in a dielectric range were also studied.

[1] Received for publication May 12, 1950.

### EXPERIMENTAL PROCEDURE

The peas used in this study were Thomas Laxton variety packed July 1, 1948, in 12-oz. cartons. The peas were held at 0° to −10° until they were used (December, 1948 to March, 1949).

*Sampling.* Samples for ascorbic acid, thiamine, and riboflavin analyses were taken from two packages on each day cooking was done. The same analyses were made on the drained cooked peas, the amount of cooking water being insufficient for analyses. Ten gm. peas were used for ascorbic acid determinations and 25 gm. for the combined thiamine and riboflavin analyses.

*Cooking Methods.* For the dielectric cooking, the peas, approximately 300 gm., were cooked in the original packages from the solidly frozen state. The packages were wrapped tightly in heavy brown wrapping paper to prevent excessive drying of the peas during cooking. The wrapped packages were placed in a Pyrex pie plate to allow full penetration of the waves from all directions and the collection of any drip that might occur. The plate was placed in the center of the oven.[2] The range was operated at high speed. The peas were cooked $3\frac{3}{4}$ min. After cooking was completed, the packages were immediately opened, and the peas were emptied into an enameled colander, together with any water that had leaked into the pie plate, and allowed to drain for 45 seconds.

For the stewpan method of cooking, a cast aluminum stewpan with a close fitting Pyrex lid was used. The solidly frozen peas in 300-gm. lots were added to 30 gm. boiling water, and the lid was placed on the pan. The peas were shaken in the pan at regular intervals, and the time required to break the block of peas entirely apart was established as the point at which the heat was turned down. Too little water was present to determine accurately the boiling point. The cooked peas were treated in the same manner as those cooked in the dielectric range. Each study was repeated eight times.

It was necessary to use another lot of frozen peas in the study in which the peas were cooked to three

[2] Radarange, product of the Raytheon Manufacturing Company, Waltham, Massachusetts.

stages of doneness in the dielectric range. These peas required only 2 min. 55 seconds for the done stage. They were also cooked underdone, 2 min. 35 seconds, and overdone 3 min. 25 seconds. The degree of doneness to which the peas were cooked represented extremes of acceptability for this lot of peas.

*Methods of Analysis.* Reduced ascorbic acid was determined by the method of Nelson and Somers (4). Thiamine was determined by the thiochrome method of Conner and Straub (5), as modified by Moyer and Tressler (6). The method for riboflavin was essentially that of MacKinney and Sugihara (7), except that the extract used was the same as that prepared for thiamine determination.

*Palatability.* Peas cooked by each method were scored by six judges for appearance, taste, aroma, tenderness, and moisture. The skins and cotyledons were judged separately for tenderness, and the appearance of each sample was determined by judging separately color, plumpness, and glossiness of surface. One lot of peas cooked by each method was judged at the same time.

*Statistical Treatment.* To determine whether the variations in per cent retentions were real or due merely to experimental variations, an analysis was made using Student's "t" method with 19 to 1 odds as outlined by Snedecor (8).

## RESULTS AND DISCUSSION

### *Ascorbic Acid*

The average retention of ascorbic acid in the peas cooked in the dielectric range was 83 ± 1.8 with a range of from 76 to 91 per cent. In the stewpan, average retention was 86 ± 4.3 with a range of 71 to 104 per cent (Table 1). These differences were not statistically significant.

The average ascorbic acid retention in peas cooked to three degrees of doneness was as follows: 88 ± 4.9 per cent in peas cooked underdone; 87 ± 5.9 per cent in peas cooked done; and 88 ± 6.6 per cent in peas cooked overdone (Table 2). These differences in ascorbic acid retention were not statistically significant. A possible explanation may be the small amount of oxygen present due to the wrappings of the package.

TABLE 1

*Retention of vitamins in commercially frozen peas cooked in a dielectric range and in a stewpan and then drained**

| SAMPLE | WEIGHT LOSS | ASCORBIC ACID | | | THIAMINE | | | RIBOFLAVIN | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Before cooking | After cooking and draining | Retention | Before cooking | After cooking and draining | Retention | Before cooking | After cooking and draining | Retention |
| **Dielectric Range** | | | | | | | | | | |
| | % | *mg./100 gm.* | *mg./100 gm.* | % | *mg./100 gm.* | *mg./100 gm.* | % | *mg./100 gm.* | *mg./100 gm.* | % |
| 1 | 21 | 21.4 | 24.0 | 89 | 0.207 | 0.269 | 103 | 0.095 | 0.115 | 96 |
| 2 | 27 | 16.5 | 17.1 | 76 | 0.237 | 0.301 | 93 | 0.098 | 0.122 | 92 |
| 3 | 24 | 16.5 | 16.6 | 79 | 0.237 | 0.277 | 88 | 0.098 | 0.135 | 108 |
| 4 | 20 | 17.9 | 18.4 | 83 | 0.240 | 0.269 | 90 | 0.085 | 0.103 | 98 |
| 5 | 20 | 17.9 | 20.4 | 91 | 0.240 | 0.275 | 92 | 0.085 | 0.096 | 91 |
| 6 | 20 | 17.9 | 19.0 | 86 | 0.240 | 0.310 | 104 | 0.085 | 0.108 | 103 |
| 7 | 24 | 23.4 | 25.0 | 80 | — | — | — | — | — | — |
| 8 | 14 | 22.2 | 20.9 | 77 | — | — | — | — | — | — |
| Mean† | | | | 83 ± 1.8‡ | | | 95.± 2.7‡ | | | 98 ± 2.7‡ |
| **Stewpan** | | | | | | | | | | |
| 1 | 17 | 21.4 | 22.8 | 88 | — | — | — | 0.095 | 0.120 | 106 |
| 2 | 18 | 16.9 | 15.1 | 76 | 0.237 | 0.260 | 90 | 0.098 | 0.100 | 86 |
| 3 | 18 | 16.5 | 14.1 | 71 | 0.237 | 0.278 | 97 | 0.098 | 0.105 | 89 |
| 4 | 21 | 17.9 | 22.4 | 100 | 0.240 | 0.329 | 109 | 0.085 | 0.108 | 102 |
| 5 | 18 | 17.9 | 22.8 | 104 | 0.240 | 0.268 | 91 | 0.085 | 0.106 | 105 |
| 6 | 18 | 17.9 | 20.0 | 93 | 0.240 | 0.285 | 98 | 0.085 | 0.113 | 111 |
| 7 | 3 | 21.1 | 20.8 | 81 | — | — | — | — | — | — |
| 8 | 18 | 21.1 | 19.9 | 81 | — | — | — | — | — | — |
| Mean† | | | | 86 ± 4.3‡ | | | 97 ± 3.4‡ | | | 100 ± 4.3‡ |

* The peas were cooked 3 min. 45 seconds in the dielectric range and 9 min. in the stewpan.

† No statistically significant differences between the vitamin retentions of the two cooking methods.

‡ Standard error of the mean.

TABLE 2

*Retention of ascorbic acid in commercially frozen peas* cooked in a dielectric range*

| DEGREE OF DONENESS† | COOKING TIME | ASCORBIC ACID RETENTION‡ |
|---|---|---|
| | *min. and seconds* | % |
| Underdone | 2 min. 25 seconds | 88 ± 4.9¶ |
| Done | 2 min. 55 seconds | 87 ± 5.9¶ |
| Overdone | 3 min. 25 seconds | 88 ± 6.6¶ |

* Each cooking lot contained 300 gm.

† The peas cooked underdone were still crisp, and in some cases chunks of peas were still frozen together. The peas cooked overdone were shriveled and dull appearing and hard in texture.

‡ Average retentions are based on three replications. No statistically significant differences between these retentions.

¶ Standard error of the mean.

### *Thiamine*

The peas cooked in the dielectric range retained an average of 95 ± 2.7 per cent of the thiamine; the range was from 93 to 104 per cent. The peas cooked in the stewpan retained an average of 97 ± 3.4 per cent, with a range of from 91 to 109 per cent. These differences were not statistically significant. Apparently little or no thiamine was lost by either method.

### *Riboflavin*

The average retention of riboflavin in the frozen peas cooked in the dielectric range was 98 ± 2.7 with a range of 92 to 108 per cent. In the stewpan, the retentions averaged 100 ± 4.3 per cent with a range of from 86 to 111. These differences were not statistically significant. Apparently little or none of the riboflavin was destroyed by either method.

A 100-mg. serving of the cooked peas contained from 16.6 to 25.0 mg. ascorbic acid, from 0.260 to 0.329 mg. thiamine, and from 0.096 to 0.135 mg. riboflavin (Table 1). The average content of a 100-gm. serving was: ascorbic acid, 20.0 mg.; thiamine, 0.284 mg.; and riboflavin, 0.111 mg.

### *Weight Loss*

The peas cooked to the done stage in the dielectric oven lost an average of 21 ± 1.4 per cent of their original weight while those cooked in the stewpan lost 18 ± 9.0 per cent (Table 1). These differences were not statistically significant.

### *Palatability*

No statistically significant differences in the palatability scores of peas cooked in the dielectric range and in the stewpan occurred (Table 3). Out of a total possible score of 40 points, peas cooked by each method received an average total of 32.8. The greatest difference was in the color and the tenderness of the skins. The peas cooked in the dielectric range rated slightly superior in color, but scored lower in tenderness of the skins. This difference in texture was similar to that reported by Bollman *et al.* (2). It was thought by the judges, however, that the differences in color and texture were so slight that they would not have been noticed if the samples had not been directly compared with each other. In the dielectrically cooked peas, a tendency toward lack of uniformity in degree of doneness was observed.

TABLE 3

*Palatability scores of commercially frozen peas cooked in a dielectric range and in a stewpan*

| PALATABILITY FACTOR* | METHOD OF COOKING | |
|---|---|---|
| | Dielectric range | Stewpan |
| | *score*† | *score* |
| Appearance | | |
| Color | 4.7 ± .26‡ | 4.2 ± .10‡ |
| Glossiness | 4.5 ± .12‡ | 4.6 ± .29‡ |
| Plumpness | 3.8 ± .21‡ | 3.5 ± .23‡ |
| Aroma | 4.5 ± .27‡ | 4.6 ± .01‡ |
| Taste | 4.0 ± .13‡ | 4.0 ± .14‡ |
| Tenderness | | |
| Skins | 3.2 ± .15‡ | 3.7 ± .29‡ |
| Cotyledons | 4.0 ± .16‡ | 4.2 ± .16‡ |
| Moisture | 4.1 ± .15‡ | 4.0 ± .13‡ |

* Each palatability factor was rated on the basis of: 5, excellent; 4, good; 3, fair; 2, poor; and 1, unacceptable. The scores are the average of thirty judgments for each factor. The total possible score was 40.

† No statistically significant differences between the scores for any of the palatability factors.

‡ Standard error of the mean.

A slight undercooking or overcooking made a great difference in the palatability. Overcooking resulted in a shriveled, dull appearance and in a very hard texture.


## SUMMARY

No statistically significant differences in the retentions of ascorbic acid, thiamine, riboflavin, or weight in frozen peas cooked in the dielectric range in their own frost and in the stewpan in 30 gm. water occurred. Peas cooked by the two methods were about equally acceptable in palatability.

Slight under and over cooking in the dielectric range did not affect the retention of ascorbic acid significantly, but it did affect the palatability.

The cooking time required in the dielectric range was about one-third of that in the stewpan method.


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## BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

### Lazara Spallanzani—January 12, 1729–February 11, 1799

In the early eighteenth century, little was known of the process of digestion, and a manuscript note from John Hunter's lecture says: "Some physiologists will have it that the stomach is a Mill;—others, that it is a Fermenting Vat;—others again that it is a Stew-pan;—but in my view of the matter, it is neither a Mill, a Fermenting Vat, nor a Stew-pan—but a Stomach, Gentlemen, a Stomach."

Spallanzani, in his memoir on digestion published in 1780, showed that digestion was not fermentation. He repeated and extended the experiments of Reaumur (1683–1757) by enclosing food in perforated metallic containers and having birds and animals swallow them. The birds rejected the containers by mouth; with the animals, he opened the stomach. Some animals were made to swallow meat on a string so that it could be withdrawn after a time and examined. Spallanzani also experimented on himself by swallowing small linen bags containing meat and bread. He obtained samples of gastric juice from animals which were made to swallow sponges tied to a string. The preservative action of gastric juice was demonstrated by placing meat in the juice where it remained sweet for days, whereas in water it rapidly putrified. The solvent action of gastric juice was shown by keeping it warm and placing meat in it. However, Spallanzani's samples of gastric juice must have been contaminated with bile and mucus, for he failed to detect the presence of any acid. Free hydrochloric acid in gastric juice was identified by William Prout in 1824.

Lazara Spallanzani was one of the ablest investigators of his time. He made outstanding contributions to physiology and morphology. He disproved the current theory of spontaneous generation by using glass flasks with slender necks which could be hermetically sealed. He showed that carbon dioxide is given off from blood and that excised stomach, liver, and other tissues take up oxygen and give off carbon dioxide. He devised quantitative experiments which showed that activity and temperature affect respiratory exchange and was the first to show that the respiratory exchange was influenced by the nature and quantity of food.

Spallanzani was born January 12, 1729, in Scandiano, Italy. His father was a distinguished advocate and intended that his son study law but finally permitted him to follow his bent for natural history. In 1754, Spallanzani was elected to the chair of Logic, Mathematics, and Greek at the University of Reggio; in 1760, he went to the University of Modena; and in 1768, he accepted the chair of Natural History at the University of Pavia where he remained until his death on February 11, 1799 (Foster says February 3). He was a great teacher and inspired his students with whom he was very popular.

He took holy orders before he was appointed at Reggio and was known throughout his life as the Abbé Spallanzani. He is described as a man of magnetic personality, robust and of medium size, with a high forehead, black eyes, and brown complexion. He was fond of society, loved to hunt and fish, and travelled widely. He was a fellow of the Royal Society of London, and a member of the Academies of Prussia, Stockholm, Gottingen, Turin, Padua, and Bologna.

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*—Contributed by E. Neige Todhunter, Ph.D., Head, Department of Foods and Nutrition. University of Alabama, Tuscaloosa.*

# Nutritional Findings in Chinese School Children[1]

## Plasma Ascorbic Acid, Hemoglobin, and Total Serum Protein

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IN North China where people depend almost entirely upon fresh vegetables for their source of ascorbic acid, the intake of this vitamin constitutes a serious problem during the winter months. These vegetables have been shown by Kung and Kwang (1) to lose a large part of their ascorbic acid progressively during the period of storage in winter, and whatever is left is further reduced by cooking. Before the war, Yu (2) found that among a group of well-fed hospital staff in Peking in winter, consuming approximately 500 gm. fresh vegetables daily, 50 per cent had a plasma ascorbic acid level between 0.2 to 0.4 mg. per 100 ml. Of the forty-four municipal inmates studied by the same author, 64 per cent had plasma ascorbic acid values between 0.1 and 0.2 mg. per 100 ml.

The present study was undertaken to determine the plasma ascorbic acid level of school children in Peking during the winter with simultaneous observations on the blood hemoglobin and serum protein and gum conditions. In conjunction with these studies, ascorbic acid saturation tests developed by Harris and Abbasy (3) were performed on a group of children selected after the ascorbic determinations were made.

### PROCEDURE

Two schools in the suburbs of Peking were selected for study. One was the Practice School of the Education Department of Yenching University which consisted of two sections, the Junior High School and the Primary School. Most of the students were children of the University faculty and staff, representing a somewhat better economic status than the average. The other was a primary school operated by a church near the University, which was attended by children in the neighboring villages.

The experiment was conducted during the winter months of 1946–47. The object of the experiment was carefully explained to the students both by the teacher and by the authors. After the explanation, the students were asked to volunteer to serve as subjects and those who volunteered had to obtain their parents' permission. Altogether 263 students participated, and they all showed great interest in this work.

About 0.3 ml. blood was collected from the finger tips of these children between 9 and 11 a.m. Preliminary inquiries showed that the breakfast of the children did not ordinarily contain any food which provided any significant amount of ascorbic acid, thus making it unnecessary to obtain fasting samples of the blood for ascorbic acid analysis. Separate small samples of bood were collected for serum protein and hemoglobin determinations. The blood samples were collected from the students of the Yenching Junior High School during the latter part of December, 1946; the Church Primary School, the latter part of February, 1947; and the Yenching Primary School, the first part of March, 1947. Plasma ascorbic acid was analyzed by the method of Farmer and Abt (4), serum protein by the gradient tube method of Lowry and Hunter (5), and hemoglobin by the use of a Sahli hemoglobinometer. The gums of these children were examined by two medical doctors.

When it was found that the plasma ascorbic acid values of the children tended to be low, ascorbic acid saturation tests of Harris and Abbasy (3) were performed to see if the result of the plasma ascorbic acid determination could be verified by another method. Forty-one students, both boys and girls, in the Junior High School were selected to represent the spread of the plasma ascorbic acid level of the group. They were given orally a dose of 10 mg. ascorbic acid per kilogram of body weight at 10 a.m. Their bladders were emptied at 2 p.m., and samples of urine

[1] Part of the expenses of this study was contributed by Dr. Icie G. Macy, Children's Fund of Michigan, and by the children of Methodist Children's Village, Redford, Michigan. Received for publication June 17, 1950.

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[3] Present address: Nutrition Division, Food and Agriculture Organization of the United Nations, Washington, D. C.

were collected between 2 and 4:15 p.m. in bottles containing metaphosphoric acid as preservative, and were analyzed for ascorbic acid by titration with 2,6-dichlorophenolindolephenol shortly after collection. When the urine sample contained 7 per cent or more of the ingested ascorbic acid, the subject was considered to be saturated. If the excretion was below 7 per cent, the administration of the ascorbic acid was continued and the collection of the urine sample repeated the second day. The test was discontinued after the third day, even though some of the subjects still did not show saturation at that time.

## RESULTS

The plasma ascorbic acid, hemoglobin, and serum protein values of the children in the two schools are given in Tables 1 to 3.

The ascorbic acid level of the plasma was unquestionably low. In only one instance had the level reached above 0.7 mg. per 100 ml., the level generally considered as the standard of adequate ascorbic acid nutrition in the United States.

There was no difference between the boys and girls so far as plasma ascorbic acid level was concerned. However, the mean value for the Junior High School students was 0.25 mg. per 100 ml., which was significantly higher than the average values for the two primary school groups, 0.10 and 0.12 mg. per 100 ml. These figures are considerably lower than those reported by Moyer *et al.* (6) for the children in the United States, but not much lower than those reported for the children in Great Britain (7). Among the three groups, the average plasma ascorbic acid level decreased with the advance of winter, reflecting the progressive decline of ascorbic acid intake from the stored vegetables.

TABLE 1

*Distribution of children according to plasma ascorbic acid levels*

| PLASMA ASCORBIC ACID LEVEL | NUMBER OF CHILDREN | | | |
|---|---|---|---|---|
| | University junior high school | University primary school | Village primary school | Total |
| *mg./100 ml.* | | | | |
| 0.80–0.89 | 1 | 0 | 0 | 1 |
| 0.70–0.79 | 0 | 0 | 0 | 0 |
| 0.60–0.69 | 2 | 0 | 0 | 2 |
| 0.50–0.59 | 3 | 2 | 1 | 6 |
| 0.40–0.49 | 9 | 1 | 1 | 11 |
| 0.30–0.39 | 10 | 0 | 4 | 14 |
| 0.20–0.29 | 21 | 5 | 12 | 38 |
| 0.10–0.19 | 29 | 19 | 27 | 75 |
| 0.00–0.09 | 7 | 53 | 56 | 116 |
| Total number of children | 82 | 80 | 101 | 263 |
| Mean plasma ascorbic acid level (mg./100 ml.) | 0.25 | 0.10 | 0.12 | 0.16 |
| Average age of children | 14.7 | 11.2 | 12.3 | |
| Time of examination | December, 1946 | March, 1947 | February, 1947 | |

The examination of the gums showed a high percentage of unhealthy conditions. Bleeding was common, sometimes even without the application of pressure, although none of the subjects could be classified as a case of frank scurvy. Many of the unhealthy gum conditions could have been the result of secondary infection following the initial injury due to ascorbic acid deficiency. There was no evident correlation between the gum conditions and the plasma ascorbic acid level, as shown in Table 4. In general, a greater proportion of girls than boys had healthy gums. Cases of angular stomatitis, cheilosis, and other symptoms suggestive of multiple B-complex deficiency were frequently observed.

The results of the ascorbic acid saturation tests in this study showed a definite trend to correlate with the plasma ascorbic acid values. Those children who had low plasma ascorbic acid levels required more time to show saturation. All children, except one, whose plasma ascorbic acid levels were 0.3 mg. per 100 ml. or higher responded to the saturation test on the second day of test-dosing, while those with plasma ascorbic acid level below 0.3 mg. per 100 ml. required three days or more. Such results may suggest that a plasma level of 0.3 mg. per 100 ml. ascorbic acid would correspond to the standard as established by the method of Harris and Abbasy (3).

The average hemoglobin value for the entire group was approximately 11 gm. per 100 ml. The differences

TABLE 2

*Distribution of children according to blood hemoglobin levels*

| BLOOD HEMOGLOBIN LEVEL | NUMBER OF CHILDREN | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | University junior high school | | University primary school | | Village primary school | | Total | |
| | Boys | Girls | Boys | Girls | Boys | Girls | Boys | Girls |
| *gm./100 ml.* | | | | | | | | |
| 13.5–13.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 13.0–13.4 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 0 |
| 12.5–12.9 | 3 | 0 | 0 | 0 | 2 | 1 | 5 | 1 |
| 12.0–12.4 | 8 | 2 | 0 | 1 | 4 | 3 | 12 | 6 |
| 11.5–11.9 | 4 | 9 | 6 | 1 | 8 | 1 | 18 | 11 |
| 11.0–11.4 | 7 | 9 | 8 | 6 | 13 | 13 | 28 | 28 |
| 10.5–10.9 | 4 | 8 | 14 | 8 | 11 | 12 | 29 | 28 |
| 10.0–10.4 | 1 | 0 | 10 | 8 | 10 | 5 | 21 | 13 |
| 9.5– 9.9 | 2 | 4 | 2 | 7 | 3 | 5 | 7 | 16 |
| 9.0– 9.4 | 1 | 0 | 0 | 0 | 1 | 3 | 2 | 3 |
| Mean (gm./100 ml.) | 11.4 | 11.0 | 10.8 | 10.5 | 11.0 | 10.8 | 11.1 | 10.8 |
| Total number of children | 30 | 32 | 41 | 31 | 53 | 43 | 123 | 106 |

TABLE 3

*Distribution of children according to serum protein levels*

| SERUM PROTEIN LEVEL | NUMBER OF CHILDREN | | | |
|---|---|---|---|---|
| | University junior high school | University primary school | Village primary school | Total |
| *gm./100 ml.* | | | | |
| 8.5–8.9 | 0 | 1 | 0 | 1 |
| 8.0–8.4 | 4 | 2 | 4 | 10 |
| 7.5–7.9 | 9 | 8 | 16 | 33 |
| 7.0–7.4 | 42 | 37 | 23 | 102 |
| 6.5–6.9 | 12 | 12 | 2 | 26 |
| 6.0–6.4 | 0 | 0 | 1 | 1 |
| Mean serum protein level (gm./100 ml.) | 7.2 | 7.2 | 7.4 | 7.3 |
| Total number of children | 67 | 60 | 46 | 173 |

among the groups were rather small, with the boys showing slightly higher values than the girls. The younger children also had values lower than the older children in the Junior High School. These values were lower than those reported by Kaucher *et al.* (8) for children in the United States, by Hawkins, Leeson, and McHenry (9) for the children of Canada, and by Charles (7) for British children. Our figures corresponded with the recent findings of Singer and Canter (10) for the children of Nanking and Chungking in China.

The serum protein values, however, appeared to fall in the normal range for Chinese (11) and compared favorably with those for children in the United States (12).

## SUMMARY

Two hundred sixty-three school children in the suburbs of Peking were examined for the plasma ascorbic acid level in the winter of 1946, and the average value was found to be 0.16 mg. per 100 ml. The ascorbic acid level in the plasma tended to decrease as the length of time of deprivation of freshly harvested vegetables increased.

Saturation tests by the method of Harris and Abbasy on a selected group of children substantiated the blood findings; subjects with plasma ascorbic acid levels of 0.30 mg. per 100 ml. or above were likely to respond satisfactorily to the saturation test.

The average hemoglobin level for boys was 11.1 gm. per 100 ml. and for girls 10.8 gm. per 100 ml. Both figures were lower than western standards.

The average serum protein value of the school children was 7.3 gm. per 100 ml., which may be considered as normal.

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TABLE 4

*Relation between plasma ascorbic acid level, gum conditions, and response to the saturation test*

| GROUPING | NUMBER OF STUDENTS ACCORDING TO PLASMA ASCORBIC ACID LEVEL | | | | |
|---|---|---|---|---|---|
| | 0.4 mg./100 ml. and above | 0.30–0.39 mg./100 ml. | 0.20–0.29 mg./100 ml. | 0.10–0.19 mg./100 ml. | 0.0–0.9 mg./100 ml. |
| Total Students | | | | | |
| In junior high school | 15 | 10 | 21 | 29 | 7 |
| In primary schools | 5 | 4 | 17 | 46 | 109 |
| Total | 20 | 14 | 38 | 75 | |
| Gum Conditions | | | | | |
| Healthy gums | 8 | 3 | 17 | 26 | 54 |
| Bleeding gums, puffiness, and pyorrhea | 12 | 8 | 18 | 44 | 64 |
| Response to Saturation Test | | | | | |
| Saturation on first test dose | 6 | 1 | 5 | 1 | 1 |
| Saturation on second test dose | 5 | 1 | 4 | 2 | 1 |
| Saturation on third test dose | 0 | 1 | 3 | 6 | 2 |
| Not saturated after third dose | 0 | 0 | 0 | 1 | 1 |

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# Editorial

## OUR PROFESSIONAL MIRRORS

One would be led to conclude after seeing the appearance of our members at the annual meeting in Washington that dietitians and nutritionists are accustomed to the use of mirrors! One would be justified in deciding that they used not only small mirrors for arrangement of their hair and for their make-up but also that full length mirrors, with a more distant view giving the general aspect, are used to good purpose. Modern women know that if the view reflected by their mirrors is not satisfactory, something can be done to improve the effect.

When the American Dietetic Association started its public relations program three years ago, it was for the purpose of acquainting the general public, the people in our communities, and associates in allied professions with us and with "how good we are". We perhaps did not say so, but we hoped to impress our employers with our value, which they may not have realized or thought about. We wanted our state and local public to know how worth while we are in the community and what services we are qualified to render. We employed a public relations agency and started telling the public about our profession. Then there were some side effects.

We began to hear of incidents which didn't fit our plan for telling the little man in the street and the big man in the state offices how good we are. We learned of an occasional dietitian who complained about how hard she worked, some college teachers who never seemed able to catch up so that they could enjoy their students and life. We heard about the poor grade of employees and the rapid turnover, i.e., personnel problems. There were reports not only about hospital dietitians but others, who spend hours keeping records and doing routine clerical work. There were two ways to combat these unpleasant hydras which were raising their heads. One would be to shame complaining members of the profession into keeping still, which can hardly be done in a democracy. The other way would be to look at ourselves as others look at us—to view ourselves in a professional mirror and improve our professional appearance.

What did we see in the professional mirror? First, we realized that it was perfectly possible to improve ourselves, as any modern woman knows. A start had to be made some place, and it seemed to be the general opinion that improvement of our members on the job would be the logical place to begin.

Employers were beginning to look at dietitians more critically because we were inviting them to do so by our public relations program. Hospital administrators were centering their attention on us. It was perfectly apparent that there was a shortage of dietitians. At a meeting of the joint committee of representatives of the American Hospital Association and the American Dietetic Association the subject of the shortage of dietitians was brought up; and we had explained what we are doing for recruitment of more dietitians. They asked what was being done to extend the present supply of dietitians. Was the best use being made of available dietitians? They looked at the survey showing the numbers and distribution of dietitians in hospitals and found that: (a) there were probably too many dietitians in some hospitals, and they asked if that indicated that dietitians were performing some duties which could be delegated to less well trained persons; (b) there were a large number of hospitals where there was no dietitian, and they were not all small hospitals. From the standpoint of hospital administrators, our recruitment program was fine, but we could see in the mirror that they did not look at us as we had been looking at ourselves. Thus, improvement of our members on the job and extending their usefulness by delegation of duties were two phases of self-improvement which were indicated.

In five years of training—four years in college and one in an internship—dietitians find (as do physicians and lawyers), that it is impossible to obtain all of the training and experience which would be advisable before starting to "practice." Administrative dietitians continue to learn by experience how to select and how to train employees. Some dietitians solve these problems better than do others. The answers to the personnel problems which every dietitian meets are not all in the books on personnel management; therefore, professional groups have used workshops as a method of pooling experiences. Workshops, particularly in the field of food administration, have been held extensively by both state and local associations, not only on personnel problems but on other phases of food production.

Under the stimulation of national committees, groups—small groups usually—have gathered for a study of the delegation of the dietitians duties. Many dietary departments have "growed like Topsy," and a thorough study of departmental organization has shown how such departments could be streamlined and subsidiary personnel trained.

Probably another phase of improvement of the members of our profession, which should be done more extensively, would be the sponsoring of institutes in nutrition. Any member of our profession, no matter where she is working—in food production, in restaurant or college food service, in research, or in equipment—needs to keep abreast of the newer knowledge of nutrition. Improvement on the job means keeping ourselves alert in the field of nutrition. However, nutrition is a factual science, and the gaining of the newest information in the field would seem to lend itself better to an institute group.

Looking again into this professional mirror, how do others see us as members of the community? It wasn't so long ago that many of our acquaintances had only the vaguest idea of what a dietitian was and what she did. People now have a general idea, but I would guess that even today the idea may be limited to hospital dietetics. Furthermore, if in your community the general public expects you to stay within the walls of your institution, then you have failed as a member of the community. There are few, perhaps no others in your immediate environs who have had your training and experience. Thus, you are an individual peculiarly qualified to serve the community in the field of nutrition, dietetics, and public health nutrition. I would include education in nutrition, practical applications in the feeding of people, guidance to mothers, especially young mothers, and an interest in the feeding of school children, the young, and the old in institutions, as a few examples to indicate the scope of activities within your field of influence.

Projects in the Association have offered our members opportunity for self-development along the lines of service. Dietitians are appearing on radio programs all over the country. The Community Nutrition Section has recently revised the "Nutrition Bibliography" which should be in every library, both city and school, and our members have an obligation and an opportunity to see that this distribution is made. We have consciously stimulated cooperation with allied professional groups by inviting administrators to our meetings, holding joint meetings with home economics associations, and cooperating with nursing groups, especially with those in nursing education, to name only the most obvious ones.

One of the smaller state associations, with a membership scattered in isolated districts and few cities, took as a definite goal this past year the aim to make every member feel that in her community she was representing the profession and that she has an obligation to make herself and her influence felt. The president of that association reports that they are beginning to receive recognition from other organizations as they never have before and are being asked to cooperate in community affairs.

The effectiveness of a public relations program isn't easy to measure. There are not many tangible results, but the state mentioned has some evidence, and probably the influence they feel is starting now will grow each year. We can be encouraged if we think back only three years, when we started our public relations program, and try to see what we would have seen in our professional mirror then.

Our profession has attained the position we now occupy because we have had a large proportion of our members who have worked devotedly and unselfishly for the profession and for the Association. The result of this professional work is seen in our favorable professional standing. Many workers have made possible the projects which have been completed over the years, not only with benefit to the profession but also with considerable benefit to the members themselves. However, when we started our present public relations program and we realized that it would be effective only if our members worked as individuals or small units, we wondered if the members would realize the importance of their part and would devote the time and effort necessary. They did and are doing the job of creating or fostering good public relations in communities all over the country. Many a member can look into her professional mirror and know that what others see is a better professional person than they saw three or four years ago.

There is no easy road to self-improvement. In lives too full of too many things, it may be necessary to look at our work objectively to see if there are unnecessary jobs or duties which are taking time and which could be done by less highly trained people. Executives of large companies do not take care of the details themselves. When your administrator looks at you, what does he think of your activities? Are some of them details he would take care of himself if he were in your position? Of course, we are assuming he is a good administrator. Serious consideration of the allocation of your time will no doubt show you how some time each day can be devoted to a deliberate personal improvement program. Reading biographies of professional people gives one stimulation and also supplies illustrations for use in teaching or in contacts. Have you read *Woman's Surgeon* by Seale Harris? *Petticoat Surgeon* by Bertha Van Hoosen? We need a *Life of Mary Swartz Rose.*

Thus, as an outgrowth of our public relations program we have looked in our professional mirror and are diligently trying to improve ourselves, so that what others see will be a truly professional person, the kind of person we want them to see. We are looking in our professional mirror and seeing that others are looking at us with appreciation of the part we can take in community life. Our goal continues to be, as Elizabeth Perry phrased it in her report to the membership at the annual meeting, "growth within our organization and service to all."

*—Lillian Storms Coover, Ph.D., President of the American Dietetic Association.*

# Current Comment

## LEARNING COMMUNITY NEEDS FOR NUTRITION SERVICES

JEANETTE PETERSON HAMLIN

*Chairman, Community Nutrition Section, Rochester, Minnesota Dietetic Association,* and *Nutritionist, Rochester Child Health Institute*

Five dietetic interns and six staff dietitians in Rochester, Minnesota, volunteered to contribute to the work of the Community Nutrition Section of the local dietetic association. Meetings were begun in December of 1949 to discuss possible projects for the year. However, before a project could be chosen, the committee felt the need to work out a definition of community nutrition and to estimate needs for such services in an average community. The committee decided they could learn these things by informing themselves more completely about Rochester's own needs and facilities for community nutrition services.

The committee, at first, planned to make a survey of local health and welfare agencies, but after consulting a health educator attached to the local health department, it became evident that such a survey would be a long and involved task for such a small committee. She suggested that approximately the same facts could be learned by selecting representatives from the local agencies and inviting them to present their needs in a panel discussion.

It seemed that such a panel would include information valuable not only to the Community Nutrition Section, but the entire Rochester Dietetic Association, local agencies dealing in health and welfare, and other groups in the community involved in food sales, food service, and nutrition and health education. The program chairman of the Rochester Dietetic Association was contacted and plans were laid to present such a program at a regular meeting of the Association.

Techniques in planning panel discussions, in handling groups, and in community education were discussed with the health educator. The committee chose as the title for the panel: "What Service in Community Nutrition Does Rochester Need?" Panel members were selected to represent agencies which, in any ordinary community, might need and request nutrition services from dietitians and nutritionists. This seemed to be a good educational technique because members of the audience, particularly the dietetic interns, might later work in other communities. Since some of the agencies or groups which might ask for assistance could also be useful in the total nutrition planning and education in a community, an effort was made to include representatives of these agencies on the panel.

### THE PANEL AND THE AUDIENCE

Only with difficulty was the panel narrowed down to include: the city-county health officer, a local physician, a supervisor of the public health nursing service, a medical social worker from a private agency, a social worker from the county welfare office, a lay person active in civic affairs, the head librarian at the local library, and the women's editor of the local newspaper. The chairman of the Community Nutrition Section served as moderator.

Many others in the community were known to be interested in the subject, and the committee felt that they could serve as resource advisors in the floor discussion following the panel. Even if they did not join in the discussion, they represented groups or agencies which might benefit by learning with us and taking back to their groups some of the possibilities for coordinated nutrition activities in a community. Invitations were extended to representatives of the YWCA, Salvation Army, and Seton Guild. Home economics teachers from the public and parochial schools, the home agent for the state extension service, restaurateurs, and local grocers were also invited. Other members of the audience were a public health engineer, a health educator, several public health nurses, and former dietitians who are now homemakers, living in Rochester. Student nurses from a school of nursing came to the meeting to carry back ideas for their next nutrition class, which was to be on "The Nurse and Nutrition in the Community."

### PLANNING THE DISCUSSION

One of the most important jobs was preparation for the program. In the course of the evening it was hoped that the audience would actually learn, step by step, what community nutrition is, the groups involved in bringing about good nutritional practices in a community, the needs that Rochester and the county have for professional assistance in nutrition (both met and unmet needs), and some of the facilities available to enrich the nutritional environment.

To accomplish this, the committee felt that adequate advance discussion with the panel members and guest resource people, both of the subject itself and the manner of presentation, was needed.

It was not surprising to find that panel members and resource people needed help in identifying or clarifying their groups' needs for professional nutrition services. Community nutrition is relatively new, even to the dietetic profession. The committee chairman met once or twice for periods varying from 15 min. to 1½ hr. with each panel member and several of the resource people. Her role was largely to explain the program and its objectives, to inform the participants of the ideas being presented by other panel members, and to stimulate those individuals to establish and crystallize their own views about nutrition needs. It was considered important that they express their own views in their own words and that their comments be a true reflection of their desire for, or need of assistance. A few days before the panel discussion, as many participants as were able gathered to decide such matters as the time allowed for each speaker, order of appearance, clearance of subject matter, techniques for obtaining audience participation, and possible methods of dealing with questions the audience might raise.

### THE DISCUSSION

The panel discussion itself proved to be a fruitful one, enjoyed by participants and audience alike, for its humor as well as its educational value. The moderator, setting the tone for the discussion, introduced the subject. Panel members were introduced by name and by amusing incidents with which they were identified. They responded in the same tone, briefly identifying the group which they represented. Each one took about 5 min. to develop two or three points concerning his or her group's needs for specialized nutritional assistance—points which proved to be very challenging to the dietitians. In this way, a story of community nutrition unfolded.

The health officer explained that the goal of the health department is to interpret nutrition to the groups and individuals it serves in a practical manner—in terms of adequate diets for them, economical food purchasing, and wise food preparation. He solicited dietitians' help for a program of inter-agency cooperation, pointing out that advice given by dietitians in hospitals and clinics as well as food served in hospitals, represents an important part of the health teaching of individuals in a community. He asked that dietitians help, in every way possible, to facilitate the program of the health department, as it is carried out by public health nurses and nutrition consultants. He also described the health department's new, unique demonstration kitchen where people can be taught by sight and taste, as well as by lectures and visual aids, the selection and preparation of needed foods.

A pediatrician pointed out that physicians in most communities would welcome help from dietitians in the form of conducting nutrition classes for mother's clubs, P.T.A. groups, and in prenatal clinics. Often doctors and communities as well need to be oriented to the types of services a dietitian can offer. Wise dietitians will avail themselves of opportunities to sell themselves and their profession to the community.

Nurses need the help and cooperation of dietitians and nutritionists as members of the total health team of a community, the public health nursing supervisor pointed out. She cited examples of how dietitians in hospitals and clinics could provide services to patients which would help them to follow through with good dietary practices after they return from the hospital to community life. She challenged dietitians to make nutrition courses for nurses vital, stimulating, and interesting.

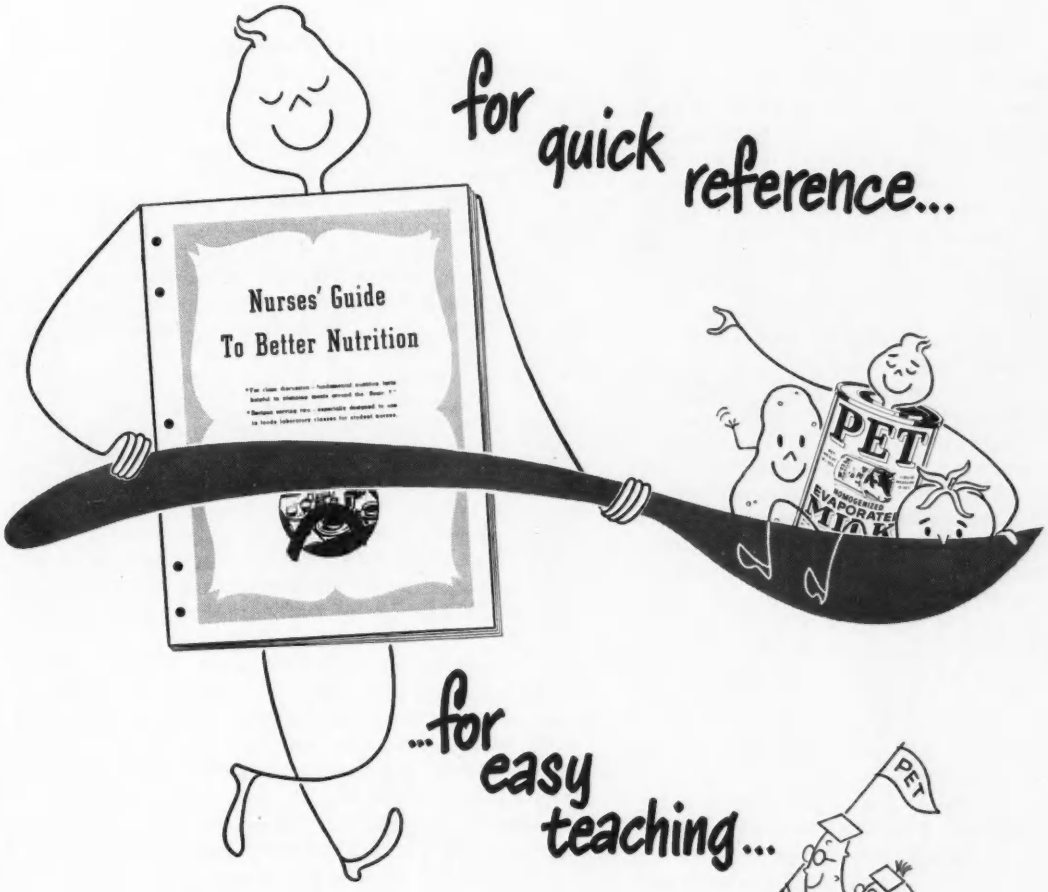
The social workers cited examples, both from the standpoint of private and public welfare agencies, where dietitians could serve as consultants on families' food problems. Individuals often need help in budgeting food funds and in marketing wisely so that they will get the most for their limited resources. Social workers can often offer assistance to dietitians, too, it was pointed out. The social worker may be able to help a patient to accept more readily the provisions of a special diet, or to find solutions for the patient's home problems which have been interfering with his obtaining an adequate diet.

A Civic League member requested help from the Association in establishing a nutrition consultant service to the day nursery program and stated that dietitians are needed to teach young girls in clubs, such as Girl Scouts, how to plan and prepare interesting and nutritious foods.

The librarian revealed that, although the library could reach many people who were not easily reached in any other way, requests from her patrons for books about food were few. The greatest circulation in this field comes from competitive hostesses who borrow cook books to find something "just a little different" to serve their bridge clubs. She offered the library's cooperation, explaining that attractive exhibits made by dietitians could be placed in the library to draw reader interest to new or useful nutrition materials.

The women's editor of the newspaper solicited the dietitians' help as authorities in nutrition so that she might provide a program in community service. She desired articles about foods seasonally on the market, recipes to use these foods, help in the development of a question-and-answer service on foods and cooking, and articles on nutrition of current interest.

The floor discussion after the panel revealed that grocers need the help of dietitians in answering their patrons' questions relative to "special diet" foods, and the YWCA felt the Association could be helpful in the Y's program for displaced persons. The need for services in many other areas were brought out during the evening, and the discussion was finally interrupted to close the meeting.

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SUBSEQUENT RESULTS

The committee was both pleased and encouraged to observe that the discussion has continued in many departments and agencies since the meeting. This was the result they had hoped for when they planned more resources for the program than could be covered in the evening. This procedure insured a lively discussion and assumed that when a subject has not been completely "talked out," it will continue of its own momentum after the meeting.

A noticeably friendly and relaxed atmosphere prevailed throughout the meeting, as did the current of audience interest. This enviable situation was due, at least in part, to the oneness of purpose of the panel members working toward a community achievement of the best possible nutrition for its citizens. Many of the panel members, as well as the audience, had already been involved for a long time in working out inter-agency relationships to accomplish this goal. This working example of a "community of interests" for a coordinated nutrition program was stimulating to participants and audience alike.

Perhaps the most interesting and vital part of this report remains to be told. A number of "contracts" were made at the end of the evening, when various dietitians and interns volunteered for the Y's program for displaced persons, scouting, and other activities. A restaurant operator suggested that he would like the assistance of dietitians in planning noon meals which are at once healthful, economical, and palatable for his patrons. Dietitian homemakers offered their services in contacting local grocers about the importance of enriched bread. Grocers discussed how they could cooperate with welfare agencies to assist families on relief to do a better job of shopping for food. They also mentioned that they would like to cooperate with dietitians in preparing market hints which could reach housewives through the medium of a foods column in the local paper.

Eight staff dietitians and two dietetic interns helped with the planning and outdoor service of food for the local art festival to help raise money for the community art center's educational activities. A cafeteria owner has volunteered a campaign in his establishment to promote the purchase of better breakfasts by his patrons.

Many members of the Association have commented that they were surprised to learn how many places in the community they were needed. Dietetic interns have expressed a real interest and enthusiasm for a part of their profession they understood little about before. Several have mentioned projects they would like to try in communities where they go after their internships. One dietitian suggested the Association activities be devoted during the coming year entirely to the local needs outlined during this meeting.

Undoubtedly, these are only a few of the results which will stem from this panel discussion. Farseeing individuals note with pleasure the sturdy groundwork which had been laid by: (a) acquainting ourselves with others in our community who are working for a good nutritional environment in Rochester; (b) identifying some of the obstacles to this goal, and (c) establishing some concrete objectives which can be achieved by working together.

### *What About Food and Water After an Atomic Attack?*

A recent publication, "Survival under Atomic Attack," released by the Civil Defense Office of the National Security Resources Board, deals with the problems to be met following an atomic attack. With permission, we quote the portion of the booklet which deals with food and water:

"Don't take chances with food or water in open containers. To prevent radioactive poisoning or disease, select your food and water with care. When there is reason to believe they may be contaminated, stick to canned and bottled things if possible.

"To prevent harm from accidentally eating or drinking radioactivity, throw out all unpackaged foods that were lying around where dust from ground bursts or mist from underwater bursts might have settled on them. And before opening canned or bottled goods, wash the outside of the containers thoroughly. That will remove most of the pollution that may have gotten on them. Also be sure that all cooking utensils and tableware are scrubbed clean in order to remove any invisible, radioactive dusts. Food and utensils that were in closed drawers or tight cupboards will be all right.

"If it was an air burst, don't worry about the food in the house. It will be safe to use.

"Be careful of drinking water after atomic explosions. There is little or no chance that water actually inside household pipes at the time of attack will be made radioactive. If a little is drawn off right after the burst and placed in clean containers with covers, it should tide you over the immediate post-raid period.

"But even if the water continues running, don't keep on using tap water for drinking purposes unless you have received official information that the city system is safe. This is not only because of radioactivity, but because of other dangers like typhoid that can come from damaged water systems. If you have to use city water before you get official information, boil it. Boiling won't remove radioactivity, but the chances that your water supply will be radioactive are pretty slim. Boiling will kill most germs that may get into damaged water mains."

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# Book Reviews

**Composition of Foods—Raw, Processed, Prepared.** By Bernice K. Watt and Annabel L. Merrill. (Agriculture Handbook No. 8, Supersedes Misc. Pub. 572) Washington: Bureau of Human Nutrition and Home Economics, U.S. Department of Agriculture, 1950. Paper. Pp. 147. Single copies upon request.

The Bureau of Human Nutrition and Home Economics for many years has taken the responsibility for compiling information on food composition, both as it has been developed in its own laboratories and as published from other laboratories in this country. A number of compilations have been printed. This new Handbook replaces Miscellaneous Publication 572 published in 1945 by the U.S. Department of Agriculture in cooperation with the National Research Council.

The data have been compiled from averages of individual analyses of foods collected over a period of years. Analytical methods have changed during the period, but no indication is given except in general terms as to how data for the averages presented have been selected.

Three separate tables are included which give food analyses in terms of eleven nutrients, calories, water, and fiber. The tables are, however, merely arithmetical adaptations of the basic data which are figured in terms of percentage composition, nutrients per pound of purchased food, and nutrients per household unit. The traditional factors (4-9-4) have not been used in converting nutrients into calories; rather a set of factors chosen for each food material was adopted. The new factors were based largely on the work of McCance and Widdowson. While it is recognized that the traditional factors do not describe accurately the caloric value of a diet of cereals only, the calories derived from the usual mixed diet characteristic of this country agree with such analyzed values as are available. The English studies add to our knowledge of foods, but have had little confirmation in this country and have not been tested adequately on our food patterns.

A table of food composition is a tool. It is recognized that no compilation of food values expresses exactly the composition of any given diet, and precise research demands a laboratory analysis. On the other hand, a much simpler table, adapted to the dietary pattern of the local population and used by a person with some judgment, can describe fairly accurately the food intakes of a population segment. The research worker who demands precision would like a table which is documented in terms of sources of data, seasonal variations, corrections made for cooking losses, and actual recipes of prepared products. A table for use in dietetic classes could be simplified to offer fewer arithmetical hazards to inexperienced students who tend to lose the significance of the nutritional point when the computation becomes long and involved. Likewise, the dietitian may have occasional need for a well documented set of food composition data, but much of her work can be done effectively with a shorter, more concise instrument, and time saved on paper work may be devoted to the patient or better food production. Unfortunately, many individuals using this Handbook will interpret detail as giving greater precision, which is not necessarily true.

One point of accuracy is questioned. Retail market meats, as purchased in the Michigan area, have been analyzed after cooking (unpublished data). The Handbook figures appear to overestimate calories derived from meat by 75 to 100 per cent because of the excessively high percentages of fat reported.—*Margaret A. Ohlson, Ph.D., Head, Department of Foods and Nutrition, Michigan State College, East Lansing.*

**Nutrition in Health and Disease.** 11th edition, revised. By Lenna F. Cooper, Edith M. Barber, and Helen S. Mitchell. Associate author, Henderika J. Rynbergen. Philadelphia: J. B. Lippincott Company, 1950. Cloth. Pp. 744. Price $4.

With its sections on nutrition, diet in disease, and food selection and preparation, this book continues to be a text suited to the needs of the student nurse. The order and treatment of subject matter conforms closely to *A Manual for Teaching Dietetics to Student Nurses*, prepared by the American Dietetic Association in 1949. It will also serve well as a reference book for the graduate nurse, dietitian, college instructor, and homemaker. The public health worker will find excellent suggestions on meal planning for the family and on nationality food patterns.

Many things have been revised and added to bring this book up to date. Information of current international interest is even included, such as references to the Food and Agriculture Organization (FAO), United Nations Educational, Scientific and Cultural Organization (UNESCO), and the World Health Organization (WHO).

Pictures, graphs, charts, and tables throughout the book present new data in concise form. The table giving stomach evacuation times and highest total acidities for various articles of diet is not often found in textbooks. Diagnostic tests are explained.

Special diets are treated as modifications of the normal adequate diet, and the tendency toward naming diets by description rather than disease is demonstrated. The "standard diet for cirrhosis patients" of the tenth edition has now become a "high-protein, high-carbohydrate, moderate-fat diet" in the new eleventh edition. Low-sodium diets are presented in more detail in this edition than in previous ones. Terminal sterilization of infant formulas is illustrated with pictures, and sterile technique is also described. The book is also up to date with the newest ideas concerning vitamins $B_{12}$ and $B_{14}$ as well as anti-vitamins and vitamin antagonists, but it fails to use the meal planning tables for the diabetic patient which were recently approved by the American Diabetes Association, the American Dietetic Association, and the Diabetes Branch, U. S. Public Health Service.

A seventeen-page bibliography gives early sources as well as some as recent as 1949. When new or controversial ideas are given in the text, a footnote contains a reference to an original article. Films are also catalogued.

The text is printed in larger type than formerly, and in two columns, thus making reading easier. The sentences are not long and involved, and the words used should be in the vocabulary of the college student. Explanations are clear and concise. Chapter headings in the upper outside corner of each page make possible quick reference to each section, and a thirty-page index provides accessibility to all topics.—*Berdena Rosenow, University of Kansas Medical Center, Kansas City, Kansas.*

# High Vitamin $B_{12}$ Content... Another Reason for Liberal Meat Intake

According to rapidly accumulating clinical and laboratory observations, the daily ingestion of liberal quantities of meat can effect profound physiologic benefits due to the significant content of vitamin $B_{12}$, not only in liver and kidney, but also in muscle meats.

Muscle meat is a good source of the newly isolated vitamin $B_{12}$; liver and kidney are especially high in their vitamin $B_{12}$ content, while plant foods are negligible sources of this nutrient.[1] By rat assay, the minimum amounts of vitamin $B_{12}$ in muscle meat range from 0.5 to 3 mcg. per 100 Gm.; minimum values for beef liver and kidney are 15 and 20 mcg., respectively.[2]

$B_{12}$ is among the most potent of known microbiologically active substances.[3] Animal studies indicate that it increases the ability of the normal mammal to utilize protein.[4] With a high protein diet, 0.01 mcg. of vitamin $B_{12}$ per day was found to increase significantly the growth rate of $B_{12}$ deficient rats. In another study, growth response of $B_{12}$ depleted rats was proportional to the $B_{12}$ in the ration within the critical range of 0.025 to 0.1 mcg. per rat day.[5]

About 1 mcg. of vitamin $B_{12}$ daily, administered intramuscularly, constitutes an effective dose in pernicious anemia. In a recent clinical study of young children manifesting vitamin $B_{12}$ deficiency as evidenced by malnutrition and growth failure, oral administration of 10 mcg. of vitamin $B_{12}$ daily for eight weeks induced marked responses in growth; notable increases in vigor, alertness and better general behavior; and improved appetite.[6]

Here again is further evidence of the broad, over-all nutrient contribution meat makes to the dietary. Eaten two or three times daily, it supplies not only generous amounts of high quality protein, but also significant quantities of vitamin $B_{12}$ and other essential B complex vitamins, and of iron.

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(1) Schweigert B. S.: Significance of Vitamin $B_{12}$ and Related Factors, J. Am. Dietetic Assoc. *26*:782 (Oct.) 1950.

(2) Lewis, U. J.; Register, U. D.; Thompson, H. T., and Elvehjem, C. A.: Distribution of Vitamin $B_{12}$ in Natural Materials, Proc. Soc. Exper. Biol. & Med. *72*:479 (Nov.) 1949.

(3) Shorb, M. S.: Activity of Vitamin $B_{12}$ for the Growth of Lactobacillus lactis, Science *107*:397 (Apr. 16) 1948.

(4) Hartman, A. M.; Dryden, L. P., and Cary, C. A.: The Role and Sources of Vitamin $B_{12}$, J. Am. Dietetic Assoc. *25*:929 (Nov.) 1949.

(5) Frost, D. V.; Fricke, H. H., and Spruth, H. C.: Rat Growth Assay for Vitamin $B_{12}$, Proc. Soc. Exper. Biol. & Med. *72*:102 (Oct.) 1949.

(6) Wetzel, N. C.; Fargo, W. C.; Smith, I. H., and Helikson, J.: Growth Failure in School Children as Associated with Vitamin $B_{12}$ Deficiency—Response to Oral Therapy, Science *110*:651 (Dec. 16) 1949.

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

American Meat Institute

Main Office, Chicago...Members Throughout the United States

# Current Literature

*Contributed by Janette C. Carlsen and Ethel M. Miller, The Johns Hopkins Hospital, Baltimore; Janet Engebretsen Dorsey, University of Chicago Clinics; Hermia M. Handt, Veterans Administration Hospital, Hines, Illinois; Pauline Kegereis, The Children's Mercy Hospital, Kansas City, Missouri; Mildred Bonnell and administrative interns, University of Washington, Seattle; and the Journal Staff.*

## THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES

*Vol. 220, October, 1950*

* Multiple sclerosis: a correlation of its incidence with dietary fat. R. L. Swank.—p. 421.
* An effect of vitamin $B_{12}$ on pain in nutritional neuropathy. W. B. Bean, M. Franklin, and A. L. Saks.—p. 431.

**Fat and Multiple Sclerosis.** Results of studies on large sectors of the population in Europe before, during, and after World War II are presented. The possibility of correlating a high-fat diet and incidence of sclerosis is suggested; the fat may contribute to the high incidence of sclerosis by accelerating it in susceptible individuals.

**$B_{12}$ Effect on Pain.** Injection of vitamin $B_{12}$ concentrate in three malnourished patients suffering from painful peripheral neuropathy brought immediate relief. Tests proved pain from other causes could not be alleviated by injection of the vitamin.

## THE AMERICAN JOURNAL OF NURSING

*Vol. 50 October, 1950*

*ACTH and cortisone in clinical practice. D. L. Wilson.—p. 649.
* The free diet for diabetic patients. E. Tolstoi.—p. 652.

**ACTH and Cortisone.** This excellent article consolidates information on the physiologic role of the adrenal cortex, and cytologic, metabolic, and anti-allergic effects of ACTH and cortisone. Dosage, administration, and clinical uses are discussed. Untoward effects are also mentioned.

**Diabetic Diet.** This article explains what is meant by "free diet," states the advantages in its use, and cites observations, studies, and experiments which confirmed the author's belief in it. A free diet permits a normal diet of self-chosen, unweighed dishes, nutritionally adequate, and excluding overeating or overindulgence in desserts. It is limited to patients treated with protamine insulin or a mixture of protamine and regular insulin. They need not be concerned with blood sugar tests and urine analyses, but must never omit insulin.

## THE BRITISH MEDICAL JOURNAL

*October 21, 1950*

* Absorption of vitamin $B_{12}$ in pernicious anemia. C. C. Ungley.—p. 905.

**Absorption of Vitamin $B_{12}$ in Pernicious Anemia.** It was found: (a) vitamin $B_{12}$ administered orally without a source of intrinsic factor was not efficiently absorbed, although remarkable effects were obtained by an enormous single dose; (b) small doses of vitamin $B_{12}$ given orally with normal gastric juice are sometimes efficiently absorbed. The efficient amount of gastric juice varied considerably. Neither fresh milk nor a whey concentrate was an adequate substitute for normal human gastric juice as a source of Castle's intrinsic factor.

## ENDOCRINOLOGY

*Vol. 47, August, 1950*

* Mechanisms of desoxycorticosterone action: effects of the water-soluble glycoside on human circulatory and renal functions. D. M. Green, A. D. Johnson, W. E. Bridges, J. H. Lehmann, and F. Gray.—p. 102.
* Some effects of purified pituitary growth hormone on carbohydrate metabolism in the rat. A. E. Milman and J. A. Russell.—p. 114.

**Adrenal and Kidney.** Desoxycorticosterone glycoside (DCG) was given to thirteen human subjects in order to study effects on circulatory and renal function. Three effects on renal action were: rise in filtration rate, reduction in tubular reabsorption of water, and alteration in sodium excretion. Sodium excretion rose at first, then fell toward or below control levels. Continuous DCG injection was not associated with significant change in systemic blood pressure.

**Growth Hormone and Metabolism.** Purified pituitary growth hormone was given to adult rats. Normal fasting animals responded with moderate hypoglycemia, and alloxan-diabetic rats with elevation of blood glucose. There were no marked effects on blood glucose in adrenalectomized-diabetic rats.

## GASTROENTEROLOGY

*Vol. 16, September, 1950*

* Metabolic derangements in chronic ulcerative colitis. E. L. Posey and J. A. Bargen.—p. 39.
Potassium deficiency in gastrointestinal diseases. J. H. Smith.—p. 73.

*Vol. 16, October, 1950*

* Protein studies in peptic ulcer. H. A. Rafsky, C. I. Krieger, and L. J. Honig.—p. 358.
Comparative buffering capacity of intact and pre-digested protein following hourly feedings. J. S. Levy.—p. 370.

**Metabolic Derangements in Colitis.** A survey was made of forty-four patients with chronic ulcerative colitis to determine the extent of metabolic disturbances. Among the disturbances noted were those of a nutritional nature. Deficiency states developed, as shown by low values for blood ascorbic acid, blood proteins, and prothrombin. Calcium and potassium deficiencies appeared.

**Protein Studies in Peptic Ulcer.** Gastric secretory response was determined in a series of thirty patients with peptic ulcer. Fifty additional patients were studied to determine total proteins and the albumin-globulin ratio in ulcer patients. Results indicated that hospitalized peptic ulcer patients need protein supplements more to combat hypoproteinemia than for a buffering and neutralizing effect.

## JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

*Vol. 144, October 7, 1950*

* Cholesterol intake and vascular sclerosis. Editorial.—p. 469.

*Vol. 144, November 4, 1950*

Chemicals in foods. Editorial.—p. 849.

# Foods at their finest

There's a reason for the acknowledged superiority of Sexton canned fruits. The luscious, tree-ripened apricots reach your table as firm and tender, as full of vitamin value and orchard-fresh flavor, as the day they were picked in the sunny Santa Clara valley. Every Sexton fruit is carefully selected for uniform quality, then uniformly packed—each can full to the brim . . . cushioned in rich heavy syrup . . . assuring you the plus value of at least one extra serving per can.

JOHN SEXTON & CO., CHICAGO, 1951

*Vol. 144, November 11, 1950*

* Intestinal resection for ileitus. E. D. Kiefer and W. T. Arnold.—p. 903.

Hypercholesteremia during cortisone and ACTH therapy. D. Adlersberg, L. Schaefer, and S. R. Drachman.—p. 909.

Toxic goiter complicating diabetes mellitus treated with radioactive iodine ($I^{131}$). B. Beidleman.—p. 925.

**Cholesterol Intake and Sclerosis.** There are differences of opinion among clinicians as to the advisability of the restriction of cholesterol intake in man for the purpose of either retarding or revising the sclerotic process. Recent studies suggest that it is not the total plasma cholesterol which correlates with vascular sclerosis, but rather the presence and quantity of an abnormal cholesterol-containing lipoprotein. The problem of restricting cholesterol in the diet is discussed, as is the relation of obesity to arteriosclerosis.

**Malnutrition and Regional Ileitis.** To prevent postoperative malnutrition in cases of regional ileitis, the diet should be high in natural proteins, supplemented perhaps with protein hydrolysate. Carbohydrates should be simple and taken in small amounts. Fat is usually the food element most difficult to absorb after the resection, and the result may be calcium deficiency, fat-soluble avitaminosis, and insufficient caloric intake. The addition of an emulsifying agent to the diet has improved the nutritional status of several patients. Irritating substances, cold foods, and too much liquid, particularly solutions with high osmotic pressures, should be avoided.

## THE JOURNAL OF CLINICAL INVESTIGATION

*Vol. 29, September, 1950*

The fate of intravenously administered calcium, effect on urinary calcium and phosphorus, fecal calcium and calcium-phosphorus balance. C. H. Baylor, H. E. Van Alstine, E. H. Keutman, and S. H. Bassett.—p. 1167.

* Dietary treatment of hypertension. Clinical and metabolic studies of patients on the rice-fruit diet. V. P. Dole, L. K. Dahl, G. C. Cotzias, H. A. Eder, and M. E. Krebs.—p. 1189.

**Rice-Fruit Diet.** Six patients with relatively uncomplicated hypertension were treated with the Kempner rice-fruit diet during a six-month stay on a metabolic ward. Five showed objective clinical improvement. Restriction of sodium but not of chloride appeared necessary for the clinical effect. Further information is given of the sufficiency of the rice-fruit diet for maintenance as shown by the attainment of steady weight, balance with respect to nitrogen, sodium, potassium, and chloride, and normal serum electrolyte concentrations.

## THE JOURNAL OF NUTRITION

*Vol. 42, October, 1950*

* Peptide wastage consequent to the infusion of two protein hydrolysates. H. N. Christensen.—p. 189.

Nutritive value of canned foods. XLII. A study of the protein value of young and mature peas. (*pisum sativum*). R. G. Chitre, J. N. Williams, Jr., and C. A. Elvehjem.—p. 207.

* Studies on comparative nutritive value of fats. XIII. Growth and reproduction over 25 generations on Sherman diet B where butterfat was replaced by margarine fat, including a study of calcium metabolism. H. J. Deuel, Jr., S. M. Greenberg, E. E. Savage, and L. A. Bavetta.—p. 239.

Perspiration as a factor influencing the requirement for calcium and iron. F. A. Johnston, F. J. McMillan, and E. R. Evans.—p. 285.

* Utilization of dehydroascorbic acid by human subjects. E. N. Todhunter, T. McMillan, and D. A. Ehmke.—p. 297.

**Peptide Wastage by Intravenous Protein Hydrolysate.** The utilization of peptides given intravenously to eight human subjects has been studied. In one preparation only about 4 per cent of the amino acids were in the bound form; in the other, 46.8 per cent were in bound form. The conclusion again was made with respect to urinary losses upon intravenous infusion into man, that superior retention of amino acids results when they are in the free state.

**Multigeneration Test on Margarine.** The multigeneration experiment with hydrogenated vegetable margarine fat replacing butterfat in the diet of rats has now been successfully completed through twenty-five generations. The study indicates that an hydrogenated vegetable margarine can supply the fat requirements of the rat over many generations.

**Utilization of Dehydroascorbic Acid.** Seven healthy young women were maintained on a low-ascorbic acid basal diet with daily supplements of orange juice containing 65 mg. of reduced ascorbic acid or norit-treated orange juice containing 65 mg. dehydroascorbic acid. When dehydroascorbic acid was fed, the levels of reduced ascorbic acid in blood serum and in urine were comparable to those obtained when the reduced form of the vitamin was given. Apparently the utilization of dehydroascorbic acid was satisfactory.

## PUBLIC HEALTH REPORTS

*Vol. 65, October 27, 1950*

* Studies on mass control of dental caries through fluoridation of the public water supply. H. T. Dean, F. A. Arnold, Jr., P. Jay, and J. W. Knutson.—p. 1403.

**Dental Caries Control Studies.** Fluoridation of the Grand Rapids, Michigan, water supply began in January, 1945. Analysis of the 1949 dental examinations showed a reduced amount of dental caries when compared with the pre-fluoridation rates in 1944–45. The findings indicate that the reduction is most pronounced in the younger age groups, whose dentition was largely calcified following the addition of 1 part per million of fluoride to the previously fluoride-free public water supply. Sufficient time has not elapsed to evaluate water fluoridation in older people.

## COLLEGE AND UNIVERSITY BUSINESS

*Vol. 9, October, 1950*

* Precosting menus is a questionable practice. D. L. Ferrey.—p. 45.

* The food service picture, 1950. H. W. Herman.—p. 46.

* Menus suggestions from the students. M. Person.—p. 48.

**Precosting Menus.** Some colleges try to cost menus before use. The author questions the practice and presents a discussion of the disadvantages of precosting menus in a college situation. However, there are instances, such as special events, which require precosting. Here, the advantages are presented.

**College Food Service.** A food service survey was conducted in 1950 by *College and University Business*. Answers to the questionnaire were received from 152 colleges from all parts of the U.S. Results indicated methods in use for controlling operational costs, information with regard to the ratio of employees to total enrollment, and also the practice of employing student help. Facilities for storage of frozen foods have increased tremendously because of the popularity of frozen foods. The survey also indicated that improvements are necessary in maintaining cost records.

**Menu Suggestions from Students.** An explanation is given here of how a food survey was carried out at Knox College in Galesburg, Illinois. The types of questions are listed. As a result of the survey, change was made in the menus, either in the preparation and serving of the food or in the actual food service.

## FOOD INDUSTRIES

*Vol. 22, October, 1950*

* Canning with antibiotics. R. E. Morse.—p. 40.

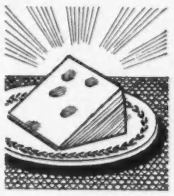
* Two edible oils seen licking problems.—p. 55.

# GOOD NUTRITION

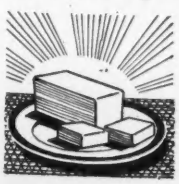
# *l-e-n-g-t-h-e-n-s the Span of Health!*

A longer *health* span, not merely a longer *life* span, is the goal of every adult. A recent authoritative article reviews nutrition problems in relation to aging.* Among the many essentials of good nutrition covered by the article are the amounts and kinds of food needed by older persons.

We are reminded that total energy requirements decrease with advancing years. The needs for certain food nutrients, on the other hand, are thought by some to *increase* even above those of earlier adult years. Thus, critical selection of foods which yield the maximum in nutrients for minimum return in calories becomes particularly important. Protein and calcium are frequently deficient in the diets of older persons. Failure of such persons to consume adequate amounts of dairy foods is a major factor in creating these deficiencies.



The article points out that: "Milk is not only a valuable source of protein but also a major source of calcium. . . . There is no reason whatever why the usual protein foods, such as milk products, cannot be employed to maintain adequate protein intake. . . . The major food sources of calcium are milk, cheese, ice cream, green vegetables, and legumes."*



In the main these generalizations for aging persons are in line with recently published findings of dietary studies and balance experiments on groups of older women.**

Long established dietary habits have a far-reaching effect on the nutrition of the aged. Certain foods are often routinely omitted because they are difficult to prepare or to eat. Dairy products, because they are liquid or relatively soft in consistency and can be used without preparation, lend themselves to the special needs of older persons.

*Stieglitz, E. J. *Nutrition problems of geriatric medicine.* J. Am. Med. Assn. *142*:1070 (April 8) 1950.

**Ohlson, M. A., Jackson, L., Boek, J., Cederquist, D. C., Brewer, W. D., and Brown, E. G. *Nutrition and dietary habits of aging women.* Am. J. Public Health *40*:1101 (Sept.) 1950.

The presence of this seal indicates that all nutrition statements in the advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

National DAIRY COUNCIL

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*Since 1915 . . . the National Dairy Council, a non-profit organization, has been devoted to nutrition research and education to extend the use of dairy products.*

**Canning with Antibiotics.** Recent investigations have reintroduced the possibility of canning foods with antibiotics. Experiments have been successful in the preservation of vegetables by mild heat and an antibiotic, subtilin. A few problems remain to be solved before the method can be applied commercially. The pros and cons of the method are presented.

**Edible Oils.** It has been found that sunflower seed oil is less subject to flavor reversion than other edible oils. Uses suggested are in oleomargarines, lard substitutes, salad dressings, French-frying, and oil packing of foods. Development of a stabilized refined corn oil has proved beneficial in all fried foods where oxidative rancidity has been a problem.

## FOOD PROCESSING

*Vol. 11, September, 1950*

* Eliminate apple discoloration in pies by modernizing with stainless steel.—p. 11.

**Elimination of Apple Discoloration in Pies.** A baking company found apples in their baked pies were black and discolored. Conditions were investigated and stainless steel was installed wherever apples contacted equipment. This completely remedied the blackening of apples in pies.

## HOSPITALS

*Vol. 24, October, 1950*

* Hot food hot and cold food cold via a central service method. D. Littauer and L. Mowry.—p. 111.

**Central Service.** Electric dish ovens on the pediatric floor of Menorah Hospital, Kansas City, Missouri, seem to be the answer to retaining central tray service with its advantages and still serve hot food. The ovens contain 6 drawers, 6¾ in. by 13 in. by 2 in., and each drawer holds two 6-in. plates. The ovens are preheated to 175°F. (maximum 225°F.) and hold the heat at 150°F. approximately 45 min. Carts may be plugged in on wards where a temperature of 170°F. may be maintained while trays are being assembled with cold food. Food may be kept in the oven as long as 1 hr. and remain fresh looking.

## HOTEL MANAGEMENT

*Vol. 58, October, 1950*

* Menu merchandising. P. Heine.—p. 44.
* Desserts that raise check average. A. Easton.—p. 54.
Some people eat lightly but often. M. L. Casteen.—p. 60.

**Menu Merchandising.** Menus are the best salesmen a restaurateur can employ. They should be treated with the same care as the planning of a newspaper ad. They should carry a "first impression" punch and should stimulate customer turnover by an easy-to-read arrangement. Specialties of the house should be conspicuously listed. Consider a separate sheet for dessert items rather than a few lines at the foot of a page that is already full.

**Using Desserts.** Special attention should be given to the planning of desserts. They should complement the entrées served on the menu. Almost every menu contains the standard favorites, such as a fruit pie, cake, ice cream, and a simple pudding. A dessert with a bit of dash, such as "meringue chantilly" or "blackbottom pie" takes that menu out of the ordinary class. Sectional favorites can be featured since they are considered favorites.

## INSTITUTIONS

*Vol. 27, October, 1950*

* Get set to hold own in face of curtailed labor.—p. 1.
Pied Piper passé, relinquishes rat routing to science.—p. 1.
Accept specifications for sanitary fountain fabrication.—p. 3.
Effective means for obliterating obnoxious odors.—p. 28.
Look to equipment for first aid in peak-time operation.—p. 82.
* Discoloration no peril in roast turkey, meats.—p. 111.
Let purpose guide choice of kitchen cutlery.—p. 132.

**Labor Shortages.** Institution managers again face problems of getting and holding competent employees as preparedness economy brings the government into competition for labor. Unions will become more active especially in mass feeding and housing industries, and wages will increase. Managers must simplify their operations to decrease labor by relying more upon mechanization and the purchasing of "ready-to-cook" foods, such as frozen foods, pre-cut meats, and peeled potatoes.

**Red Spots in Cooked Meats.** A deep pink color or blood red spots that are sometimes found in very well done turkey, pork, veal, or beef have not been known to cause any harmful effects. Nitrates contained in the water drunk by animals in semi-arid regions become deposited in the muscles and when the meat from these animals is cooked, the nitrates make the color permanent. Also, ground meat may contain a coal tar dye to keep it from darkening.

## THE MANAGEMENT REVIEW

*Vol. 39, September, 1950*

*Job values in relation to personal background. J. G. Freind and E. A. Haggard.—p. 530.

*Vol. 39, October, 1950*

* How to run employee contests for improved performance.—p. 605.
* Improving relations between salesmen and purchasing agents.—p. 618

**Job Values.** Here is reported a study in which eighty individuals were questioned in an attempt to evaluate the relationship of the worker to the job. Common factors valued by most of the group were appreciation, good relations with the boss, future security, independence, being treated as individuals, good pay, and some responsibility over the job.

**Employee Contests.** Results of employee contests reveal them to be one of the best techniques to spur efficiency and production. Success is assured if all department heads are consulted, if the contest is thoroughly planned, if all supervisors are briefed, if the award can be displayed, and if interest is kept strong while the contest is in progress.

**Salesmen-Buyer Relations.** Both the salesman and the buyer can profit through better understanding of each others problems. Both deserve interviews by appointment, punctuality, and consideration. An opportunity for a sales presentation with facts about buying policy, buyer's needs with correct specifications, maximum time in filling orders, permission to obtain proper contacts, and notification of defective material are the salesman's requirements.

## QUICK FROZEN FOODS

*Vol. 13, September, 1950*

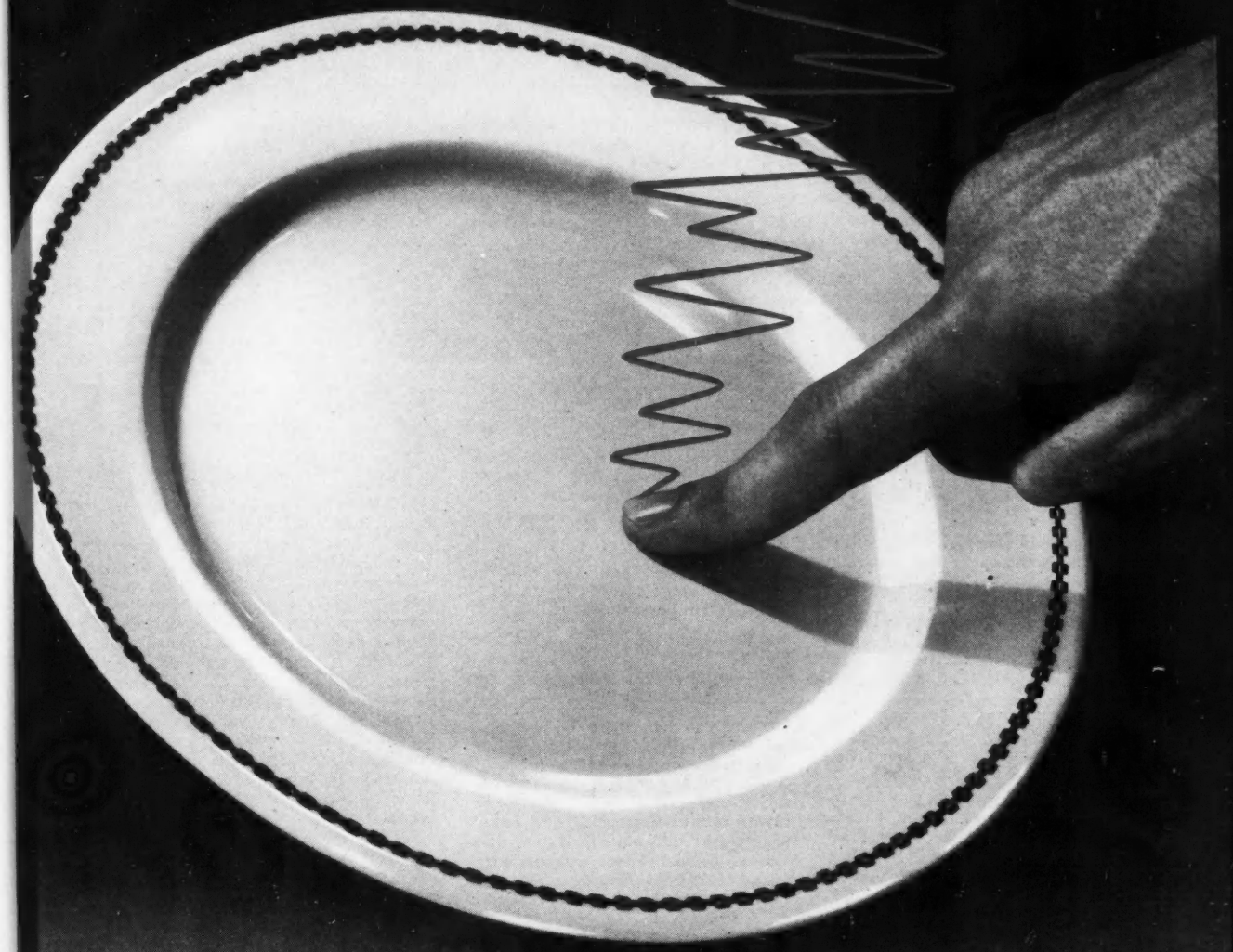
* Marketing precooked foods as the British do it.—p. 43.

*Vol. 13, October, 1950*

Unusual frozen vegetables. G. Singleton.—p. 48.

**Precooked, Frozen Foods.** Development of mass production of precooked, frozen foods by a London catering and restaurant business is described. Arising as a solution to their problems of production and distribution during war conditions, it now distributes complete meals to retail stores, air lines, and other countries. Low costs are maintained by concentration on simple, inexpensive dishes, limited advertising, simple packaging, and good distribution procedure.

# THIS MOVING FINGER SPEAKS...



## ..tells you why the SUPER SOILAXED DISH is the SANITARY DISH!

• Run your finger over any surface that's entirely free of grease. You'll hear it squeak out its message of cleanness. But let there be ever so slight a trace of oil or fat—the finger's mum!

When you use Super Soilax in your dishwashing operations, every single piece of china, silver and glass comes "squeaky clean" *every single time*—and you can prove it with this simple "squeak test!"

Super Soilax does even more than float away all food soil, all grease! It prevents precipitation of film-forming elements that cloud glasses, film china, dull silver! Give your guests the benefits of Super Soilax's super-cleansing properties!

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•

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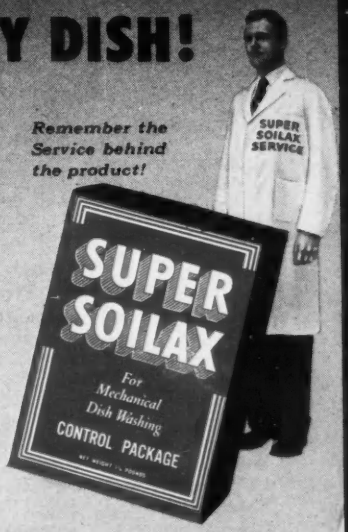


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# News Notes

**Phyllis Dawson Rowe Memorial Scholarship.** Friends of Phyllis Rowe are establishing a scholarship fund in her honor at Simmons College, Boston. The interest on the fund will be awarded each year to an outstanding junior or senior majoring in home economics. The first recipient is Nancy Lewis, a junior, who is a member of Academy and the local honor society. This year Miss Lewis is President of the College Home Economics Clubs in Massachusetts.

**New Appointment.** Dr. William H. Sebrell, who was Co-Director with M. L. Wilson of the National Nutrition Program from 1941 to 1948, has been appointed Director of the National Institutes of Health, U. S. Public Health Service, Bethesda, Maryland.

**New Nutrition Booklet.** Metropolitan Life Insurance Company has just published a booklet, *Food for the Family*, for use in teaching nutrition. Many of the facts on the feeding the family are given in chart form for quick reference. Information on carbohydrates, proteins, minerals, and vitamins is presented under headings in the charts of "Why Needed"; "Where Found"; and "Insufficient Amounts May Cause or Contribute to." This section is followed by a meal planning guide, in which classes of foods are discussed; there are also buying tips and a chart on meat cuts. Copies may be obtained from Home Economics Bureau, Health and Welfare Division, Metropolitan Life Insurance Company, One Madison Avenue, New York 10, New York.

**Plentiful Foods.** The following foods, according to the Production and Marketing Division, U.S.D.A., will be plentiful in January:

*Fruits and vegetables*

Apples
Cabbage
Cranberries
Grapefruit
Onions
Oranges
Potatoes
Sauerkraut
Tangerines

*Protein foods*

Broilers
Cottage cheese
Fish, frozen fillets
Pork

*Other foods*

Honey
Peanut butter

**Awards to Home Economists.** The Grocery Manufacturers of America, Inc., on November 13 awarded two home economists the GMA Life Line of America Trophies at its annual meeting in New York. These honored were Heloise Parker Broeg, Boston, who is known as "Mother Parker" on the Food Fair program, station WEEI, and Agnes Reasor Olmstead, Home Economics Editor of the Atlanta *Constitution*. Both received recognition for their success during the past year in reporting and explaining America's food production and distribution to their readers and listeners.

**Addenda.** The following should be added to the List of Fruit Exchanges which was included as Table 7 of the article on "Calculation of Diabetic Diets" in the August 1950 issue of the JOURNAL:

| FOOD | APPROXIMATE MEASURE |
|---|---|
| Blueberries | ⅔ cup |
| Pear | 1 small |

The names of two persons should also be added to the list of consultants to the Committee on Diabetic Diet Calculation: Helen F. Rosenthal and May S. Reynolds.

**Air Force Personnel.** The following have been appointed as dietitians in the U. S. Air Force:

1st Lt. Barbara M. Hodgkins, Waltham Mass.

2nd Lt. Barbara E. Parker, Springfield, Ohio

First Lieutenant Julia R. Moynihan has been transferred from the Department of the Army to the Department of the Air Force.

**Army Interns Graduate.** The following dietetic interns, all second lieutenants, graduated from Brooke Army Hospital, Fort Sam Houston, Texas, on October 28: Dorothy Breland; Charlotte Davis, Patricia J. Evanhoe; Marilynne Faust; Marie C. Fitzgerald; Martha E. Frazee; Jean P. Hunger; Selna Kaplan; Viola Lentz; Mary K. McDonnell; Florence Matty; Barbara Priceman; Barbara Stierle; Ann White; and Eileen B. Witte.

**Elizabeth Fogg.** Word has been received from the Los Angeles County Health Department of the death of Elizabeth Fogg, on November 16. She had been nutritionist for that organization for twenty years. She was a charter member of the California Dietetic Association and had been an A.D.A. member since 1927.

**Buying Fruit Juices.** Dr. E. Neige Todhunter, School of Home Economics, University of Alabama, has prepared a folder on "Buying Fruit Juices." In it are discussed in lay language the value of juices as a source of ascorbic acid, the retention of ascorbic acid in frozen juice during storage, requirements for ascorbic acid, and comparative nutritive value of canned, frozen, and fresh juice. A chart is also included citing the cost and content of ascorbic acid in six types of canned juices.

**Carrot Nutrients.** A report from the New Mexico Experiment Station shows that carotene increases as carrots mature. As long as carrots remain edible, there is no loss of carotene in storage; in fact, carotene can increase during storage. Carrots also offer some ascorbic acid, but immediately after harvesting they lose some of it; after that, there is a gradual loss during storage. Carrots stored without tops keep in good eating condition longer than those stored with tops.

## News of State Associations

**Connecticut Dietetic Association.** On November 8, the Connecticut Dietetic Association met at the Hartford Hospital, Hartford. The theme of the meeting was "Diet Therapy in Present Day Treatment." Dr. Hugh L. C. Wilkerson, Chief, Diabetes Branch, U. S. Public Health Service, spoke on the diabetes program of the U. S. Public Health Service. He was followed by Elizabeth K. Caso, Nutritionist, Diabetes Branch, U. S. Public Health Service, who discussed "Materials for Patient and Professional Education in Diabetes." At the evening session, Dr. Fredrick Stare, Department of Nutrition, Harvard School of Public Health, Boston, spoke on "Nutritional Needs in Illness."

**Florida Dietetic Association.** "Dietitians Hold the Keys to Better Living" was the theme of the annual meeting of the Florida Dietetic Association held in Tampa, November 3 and 4. The following speeches were included on the program:

"The Key to Quality Food Production" by Esther Latzke, Chief, Consumer Service Department, Armour and Company, Chicago

"The Key to Sound Employer and Employee Relations" by Dr. Guy Crews, Assistant Manager, Sealtest Dairy, Tampa

"The Key to Nutritional Research" by Dr. Arthur Raynolds, Veterans Administration Hospital, Bay Pines

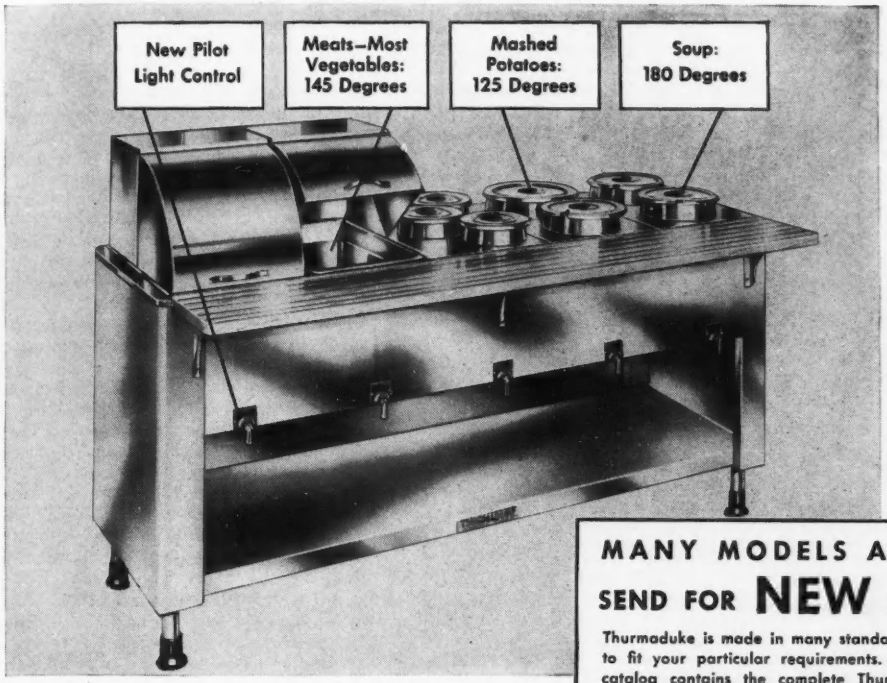
"The Key to Better Commercial Feeding" by Eleanor Pfluke, Maas Bros. Tea Room, St. Petersburg

"The Key to Better Living Through Consumer Education" by Helen James, Dietitian, Hillsborough-Pinellas Dairy Council, Tampa

"The Key to Better Community Relations" by Dr. Walter Wilkins, State Board of Health, Jacksonville

"The Key to Enjoyable Living" by Dr. Elwood C. Nance, President, Tampa University

"The Key to the Growth of the Profession" by Margaret L. Ross, A.D.A. Professional Activities Director



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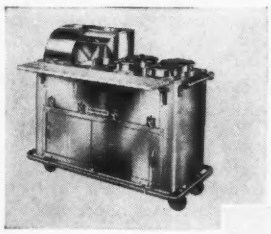

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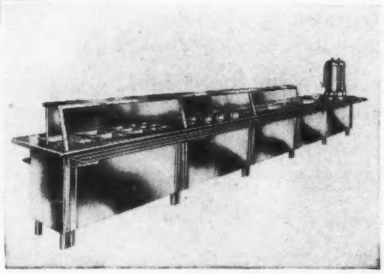

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Field trips were also arranged to Louis Vohl and Sons, restaurant supply wholesalers; Dixie Lily Milling Company; Tampa Cold Storage and Frozen Foods plant; Morrison's Cafeteria; and C. G. Graham Lunch Room.

**Georgia Dietetic Association.** On November 3, the Georgia Dietetic Association met in Augusta. Following a business meeting and report of the A.D.A. convention in Washington, two professional talks were given by members of the staff of Veterans Administration Hospital, Augusta: "Nurses and Dietitians as Part of a Medical Team" by Laura W. Fitzsimmons, R.N., Chief, Nursing Service; and "Rating and Interviewing the Employee" by Fred Putnam, Assistant Personnel Officer.

**Iowa Dietetic Association.** The fall meeting of the Iowa Dietetic Association was held in Iowa City on November 8. The program included the following speeches:

"Mental Hygiene and Our Iowa Institutions" by Dr. Charles C. Graves, Director of Mental Institutions, Iowa Board of Control of State Institutions

"The Midcentury White House Conference on Children and Youth" by Dr. R. H. Ojemann, State University of Iowa

"Recent Progress in Intravenous Feeding" by Dr. Richard Eckhardt, University Hospitals

**Idaho Dietetic Association.** The seventh annual meeting of the Idaho Dietetic Association was held in Boise on November 4. Dr. F. O. Graeber, Idaho Public Health Department, addressed the group on "Nutrition in Public Health." He urged that the members develop an Idaho diet manual for use both by institutions with dietitians and smaller ones which do not employ a dietitian. A report on "Dietetics in Sweden" was given by Ella Larson, Swedish dietitian now at Caldwell Memorial Hospital, Caldwell, Idaho. Martha Taft, Chief Dietitian, Veterans Administration Hospital, Boise, reported on the A.D.A. convention in Washington.

**Indiana Dietetic Association.** The Nutrition Council and the Indiana Dietetic Association have cooperated in sponsoring a meeting on nutrition which was attended by some 250 laymen and professional persons. Speakers for the program were Julia Kiene, Westinghouse Electric Corporation, Mansfield, Ohio, who discussed the Pennsylvania mass nutrition study, and Dr. Russell Wilder, Mayo Clinic, who reported on the Newfoundland resurvey of nutrition.

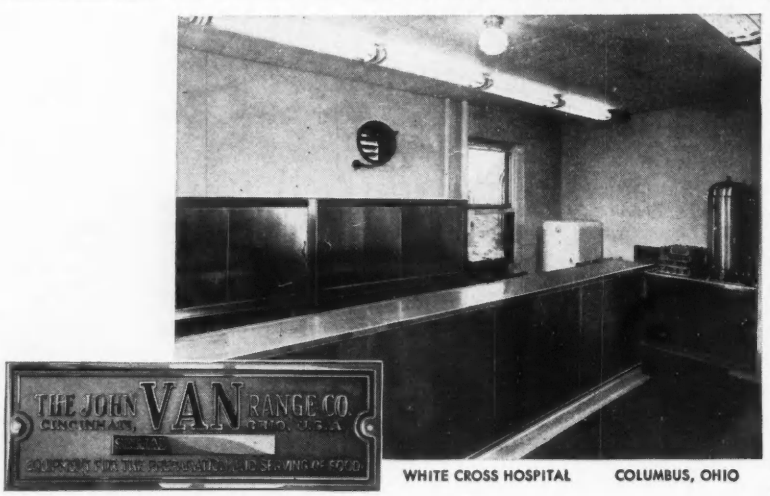
**Maine Dietetic Association.** The fall meeting of the Maine Dietetic Association was held in Bangor on November 1. Twenty-two members from all parts of the state attended. The business meeting was followed by reports of the convention, and plans and activities were discussed for the coming year.

**Maryland Dietetic Association.** At the November meeting, members gathered in discussion groups to plan the year's work programs. The Diet Therapy Section will study special dietetic products; the Food Administration Section will conduct a workshop on "Food Standards" and "Mental Attitudes"; the Professional Education Section plans to review new books on dietetics; the Community Nutrition Section will work on: (a) a list of nutritionists in the Maryland area, (b) compiling a bibliography on nutrition for the use of teachers of teen-agers, and (c) revising and continue to sponsor a course for food handlers.

Maryland dietitians have been busy cooperating and helping with other groups. Several members helped to arrange and appeared on the program for a school lunch workshop held on November 3 at Clifton Park High School. Others have been working with the Baltimore County and City Homemakers' Clubs by presenting demonstrations, giving talks on nutrition, and arranging conducted field trips to food companies and plants.

**Michigan Dietetic Association.** Nearly 100 delegates attended the fall meeting of the Michigan Dietetic Association in Flint which set up as its objective acquainting members with the most recent discoveries in the field of dietetics. The following talks were included on the program:

"Teaching Family Nutrition to Expectant Mothers" by David R. Treat and Sylvia Krejci, Clara Elizabeth Fund for Maternal Health



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"A Diabetic in the Community" by Dr. Jere Bauer, Assistant Professor of Internal Medicine, University Hospital, Ann Arbor

"Practical Personnel Management" by Foster B. Roster, Director of Civil Service, Flint

**Minnesota Dietetic Association.** Rochester was the scene of the Minnesota Dietetic Associations fall meeting in November. Grace McMahon, Instructor, University of Minnesota, St. Paul, spoke on "Food Administration in Small Hospitals." The topic, "Mid-century White House Conference: The Role of the Dietitian in the Follow-Up Program," was covered by Dr. Benjamin Spock, Co-Director of Rochester Child Health Institute. Other speakers of the day were Dr. Miriam E. Lowenberg and Dr. Viktor O. Wilson. After the luncheon honoring Dr. Russell M. Wilder, who is returning from the Mayo Clinic, Margaret L. Ross, A.D.A. Professional Activities Director, spoke on "Association Affairs."

**Missouri Dietetic Association.** The Missouri Dietetic Association held its fall meeting in St. Louis on November 17. Guests were members of the St. Louis Restaurant Association and visiting nurses. Dr. John Esben Kirk, Director of Research, Division of Gerontology, Washington University Medical Center, spoke on "Vitamin A, Thiamine, and Ascorbic Acid in Nutrition in Older Individuals." Other speakers on nutrition were: Dr. Jean Halowach Thurston, Instructor in Pediatrics, St. Louis Children's Hospital, whose topic was "The Feeding of Premature Infants," and Dr. James B. Stubbs, Instructor in Internal Medicine, St. Louis University School of Medicine, who discussed "Diet and Cardiovascular Diseases." At an administrative session, Joyce Gibbons, Dietitian, Barnes Hospital, talked on the "Operation of a Hospital Dietary Department" and Sara E. McCorkle, Manager, Food Division, Scruggs-Vandervoort and Barney, spoke on "Comparative Payroll Costs." Ruth Yakel, A.D.A. Executive Secretary, represented the national Association at the meeting.

**New Jersey Dietetic Association.** The annual meeting of the New Jersey Dietetic Association was held November 15 at Woodlawn, New Brunswick. The business meeting was followed by an educational and inspirational talk by Marie Doerman, Nutritionist, College of Agriculture, Rutgers University. Miss Doerman spoke about her two years' experience in Germany as a nutritionist representing the U. S. Department of Agriculture.

The Diet Therapy Section of the New Jersey Association has prepared a "Special Diets Manual," which will be distributed to the state welfare agencies. The Food Administration Section, too, is working on a publication—a "School Lunch Equipment Bulletin"—which, it is hoped, will be available soon.

The Vocational Guidance and Public Relations committee has sent letters to those in charge of vocational guidance in high schools throughout the state requesting notification of career days and informing them that representatives from the association will be available for talks on these occasions.

**North Carolina Dietetic Association.** The fall meeting of the North Carolina Dietetic Association was held in Fayetteville on November 9 and 10. A breakfast meeting honored the dietetic interns of the state. At a dinner at Fort Bragg, opportunities for dietitians in the Women's Medical Special Corps were described by Capt. Marion Donaldson, Office of the Surgeon General, Washington.

Other speeches on the program included: "The Home Economist in Television" by Emily C. Davis, Information Specialist, Bureau of Human Nutrition and Home Economics, Washington, who urged home economists to take advantage of opportunities for television appearances, since it will offer an educational medium to teach nutrition. Dr. Henry F. Page, Graduate School of Medicine, University of Pennsylvania, Philadelphia, spoke on "Nutrition and Geriatrics." He recommended a diet for the aged which is relatively high in easily digested proteins, low in fat, and relatively low in carbohydrate. He stressed that more research is needed before the low-choles-


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terol diet can be applied to the treatment of atherosclerosis. Virginia Wilson, Extension Service Nutrionist, Raleigh, talked on "Recent Progress Toward Improvement of Dietary Standards in Rural Communities of North Carolina." A panel discussion on "Administrative Problems of Small Hospital Dietitians" was presented by Florence Pittman, Grace Johnston, Alice McLean, and Mattie May Reavis. Dr. Margaret A. Ohlson, A.D.A. President-Elect, represented the national Association and discussed its activities.

**North Dakota Dietetic Association.** Recently dietitians were spotlighted on a Fargo radio program. Dorothy Revell, President of the North Dakota Dietetic Association, was interviewed over KFGO on a half-hour program allocated to the Home Economics Department of the North Dakota Agricultural College. The broadcast covered various career aspects of the field of dietetics, including the need, training, work, and number of dietitians. When the North Dakota Association met in November, the Fargo *Forum* also gave the group publicity in its news columns and included a picture of the new officers.

**Oregon Dietetic Association.** In Oregon dietitians are cooperating with the state Nutrition Council and the Home Economics Association. An intercouncil has been appointed to plan joint meetings, workshops, and institutes; to organize any joint project undertaken by the groups; and to prepare a newsletter. Among the projects which have been suggested are: consumer education, training for speakers, and local participation in health councils and community activities.

**South Carolina Dietetic Association.** The theme of the joint meeting of the South Carolina Dietetic Association, South Carolina Home Economics Association, and the state Nutrition Committee, held in Columbia, November 2 to 4, was "The Home Economist in Family Life." The program was directed especially to the needs of the schools and the public health nutritionist. Principal speaker on the program was Dr. Margaret A. Ohlson, A.D.A. President-Elect, who described the nutrition research program being conducted at Michigan State College. At the business meeting, she discussed activities of the national Association, after which Frances Eddy reported on the convention in Washington. Also included on the program was a talk by Pauline M. Murrah, Nutritionist, American Red Cross, Washington, who urged dietitians to offer their services to local Red Cross chapters as technical advisors for nutrition committees.

First scholarship award of the South Carolina Dietetic Association—an anual $50 award to an outstanding senior in institution management at Winthrop College—has been presented to Virginia Shuler of Williston, South Carolina. Miss Shuler is an intern at Vanderbilt Hospital, Nashville, Tennessee, this year, but plans to return to South Carolina to work.

**Virginia Dietetic Association.** The fall meeting of the Virginia Dietetic Association was held on November 10 and 11 at Old Point Comfort. Speeches on the first day were:

"State Nutrition Work in Virginia" by Mabel Todd, Nutritionist, Virginia Department of Health, Richmond
"Nutritional and Metabolic Factors in the Therapy of Alcoholics" by Dr. E. C. Hoff, Professor of Neurophysiology, Medical College of Virginia, Richmond
"Public Relations for Dietitians" by Dr. William T. Sanger, President, Medical College of Virginia, Richmond

On Saturday, the speaker was Mabel Gladin, Nutritionist, North Carolina State Department of Health, who spoke on "Training Student Waitresses in a College Dining Hall."

The first loan from the Margaret E. McDonald Loan Fund of the Virginia Dietetic Association has been awarded to Dorothy M. Rowe, a 1950 graduate of Madison College, Harrisonburg, who is now interning at Ohio State University.

The Virginia Dietetic Association has become the recipient of a diet manual written by Florence Nightingale. The donor is Mary deGarmo Bryan. The Virginia Association plans to make this manual available for loan to its members.

The *Richmond Dietetic Association* met in October at the McGuire Veterans Administration Hospital to hear Dr. Benedict Nagler, Chief, Neuropsychiat-

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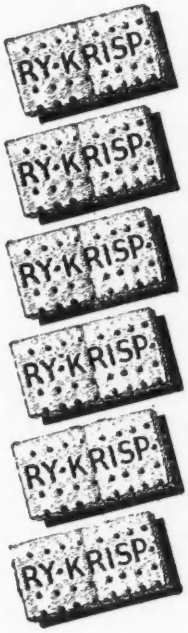


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ric Service, talk on "The Roles of the Dietitian in the Care of the Neuropsychiatric Patient."

**Washington State Dietetic Association.** The fall meeting of the Washington State Dietetic Association was held on November 10 and 11 in Seattle. The first morning session took the form of a panel and group discussion on "How to Be More Effective on Your Job." Topics discussed were: "Delegation of Work" by Margaret Terrell; "Effective Public Relations" by June Pettibone; and "Problems of Employee Training and Supervision" by Beth Gannon. In the afternoon a workshop for consultants to small hospitals was conducted by Mary Northrup.

The second day's program included a report of A.D.A. activities by Lillian Storms Coover, President, after which the following three administrative talks were heard:

"How to Supervise" by Mildred Bonnell
"How to Organize an Employee Training Program" by Florence Quast
"Tools of Management" by Richard R. Woodward

**West Virginia Dietetic Association.** The main project of the West Virginia Dietetic Association for the coming year will be to introduce the use of the new method for calculating diabetic diets into the hospitals of the state. It is hoped that each member of the organization will cooperate in this project.

Members of the *Charleston Dietetic Association* met with members of the County Medical Society on November 28 to discuss the new method of calculating diabetic diets. Members are also initiating a program of child nutrition, working with the city health department. This organization, founded two years ago with six members, now has a membership of fourteen.

**Wisconsin Dietetic Association.** The *Northern Wisconsin Dietetic Association* met in Marshfield on November 11. Following a business meeting and election of officers in the morning, Dr. F. J. Gouze, St. Joseph's Hospital, talked on "Low-Sodium Diets." At the afternoon session a report of the A.D.A. convention in Washington was given by Vera Kerstell, St. Mary's Hospital, Wausau. She was followed by Verna McKinley, former A.D.A. Director of Placement Bureau, who discussed the activities of the Association's Placement Bureau. Professional talks included "Clinical Experiences with Various Insulin Preparations" by Dr. Robert S. Baldwin, St. Joseph's Hospital, and "Improving Dietary Administration in the Hospital" by Lucille Billington, Wisconsin Bureau of Maternal and Child Health, Madison.

The *Madison Dietetic Association* this fall co-sponsored, with the University Extension Division, a course in cost control for dietitians, which was given on November 7 at the University. The course was planned to review fundamentals of accounting as they apply to a hospital dietary department, including budgets, operating statements, reports, and costs and cost control.

# always pack in plenty of citrus fruit

For young and old, rich or poor—to maintain buoyant health and prevent sickness[1,5]—adequate vitamin C is "good medicine." Since mild nutritional deficiencies are so common,[2,4] and vitamin C even in excess is not harmful[7]—sound dietetics today calls for the abundant use of foods rich in this factor.* Florida citrus fruits are so popular . . . so varied . . . so convenient . . . so inexpensive, they can be used every day at every meal (as juice, fruit cup, salad, with entrees, as desserts, for between-meal snacks, etc.). And whether fresh, canned or frozen, they retain their vitamin C potency—and their pleasing flavor—almost indefinitely.[3,6,8]

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**References:**

1. Bicknell, F., and Prescott, F.: The Vitamins in Medicine, Heinemann, 2nd ed., 1946. 2. Bull. Nat. Research Council No. 109, 1943. 3. Krehl, W. A. and Cowgill, G. R.: Food Research, 15:179, 1950. 4. Lucia, S. P., and Simmonds, N.: J. Pediat., 37:608, 1950. 5. McLester, J. S.: Nutrition and Diet in Health and Disease, Saunders, Phila., 4th ed., 1944. 6. Moore, E. L. et al.: J. Home Econ., 37:290, 1945. 7. Quart. Rev. Pediat., 4:170, 1949. 8. Roy, W. R. and Russell, H. E.: Food Industries, 20:1764, 1948.

### Army Announcements Concerning Dietetic Personnel

The Department of the Army has released the following official list of names of dietitians in the Women's Medical Specialist Corps who have been separated from service:

1st. Lt. Isabel M. Carter, R-2291
Capt. Vivian T. Hicks, R-10011

The following dietitians have received appointments in the Regular Army in the grade of First Lieutenant:

Agnes J. Ratcliff, R-10106
Helen R. Barefoot, R-10107
Elizabeth V. Woodham, R-10108
Mary R. Preston, R-10109

The following promotions of dietitians in the WMSC have been made:

*Captain to Temporary Major*
Elizabeth S. Carless, R-10065
Ida M. Fariss, R-739
Lois M. Forsythe, R-10039
Alice T. A. Knox, R-10062
Erma G. Lord, R-10069
Donna S. Lowe, R-10037
Martha E. Moseman, R-10031
Alene V. Ness, R-10068
Lydia L. Romersa, R-10007
Ruth G. Strain, R-10070
Helen N. Thomasson, R-332
Helen Tremback, R-10073

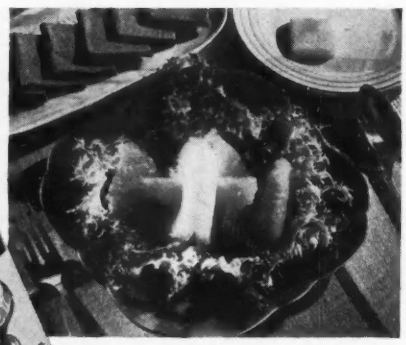
*First Lieutenant to Captain*
Kathyrn V. Buck, R-2259
Anna T. DeNegri, R-10082
Dorothy E. Fisher, R-10058
Rosamond E. Hughes, R-10029
Althea Luttrell, R-10051
Ellen C. Miller, R-10094
Mary R. Preston, R-2240
Jennie F. Quam, R-10053
Margaret E. Radke, R-10024
Louise L. Stiles, R-2330
Frances Taylor, R-1346

The following dietitians, previously separated from service, are now on extended active duty:

Capt. Eleanor R. Reimers, R-1087
Capt. Mary L. Timerman, R-170
1st Lt. Evelyn G. Summers, R-1254

Second Lieutenant Tersa A. Van Hulla, R-2596, has received an initial appointment in the WMSC, Extended Active Duty.

FOR THE
*Diabetic*



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## *Association Activities*

**A.D.A. Was Represented.** A joint committee comprised of representatives of the *School Food Service Association, the American Home Economics Association, and A.D.A.* met in Kansas City on November 9, at the time of the annual meeting of the School Food Service Association. Dr. Ercel S. Eppright represented the Association in the absence of Dr. E. Neige Todhunter, our regular representative on the committee.

A meeting of the *Food and Nutrition Board* of the National Research Council was held in Washington, D. C., November 17 and 18. Dr. Icie Macy Hoobler, Chairman of the Board's Committee on Maternal and Child Feeding, represented A.D.A. in the absence of Dr. Helen A. Hunscher, our liaison representative.

A.D.A. was invited to send a representative to a meeting on November 29 and 30, sponsored by the *Poultry Branch, Production and Marketing Administration, U.S.D.A.* The meeting was called primarily to consider the question of amending the regulations requiring some form of official inspection as a prerequisite to grading ready-to-cook poultry. The group met in Washington, D. C.

A.D.A. recently has become an associate member of the *International Hospital Federation.* This is an affiliation for the study of common problems.

Ruth M. Yakel, our Executive Secretary, presided at one of the sessions of the Institute on Dietary Department Management conducted by the *American Hospital Association.* The institute, attended by 144 persons, was held in Chicago, December 4 to 8. Several A.D.A. members participated in the meetings.

**Publicity for A.D.A.** Publicity material in connection with our recent annual meeting in Washington and the election of 1950–51 officers has appeared in the following publications:

*Food Field Reporter*—October 23 and November 6
*Forecast for Home Economists*—December
*Hospital Management*—November
*Institutions*—October, November, and December
*Medical Woman's Journal*—September
*Modern Hospital*—November
*Practical Home Economics*—October
*Science Newsletter*—October 6 and 28, and November 10

**New Kits Available.** For the past two years, the Association has prepared Publicity and Vocational Guidance Kits for the use of state and local associations in their public relations programs. This year the two kits have been revised and combined. Sample kits have been sent to Public Relations, Vocational Guidance, and Professional Education Chairmen of state associations; state and local Presidents; Directors of Approved Internships; and Editors of state bulletins. Additional kits may be obtained from the Association office for $1.00 each.

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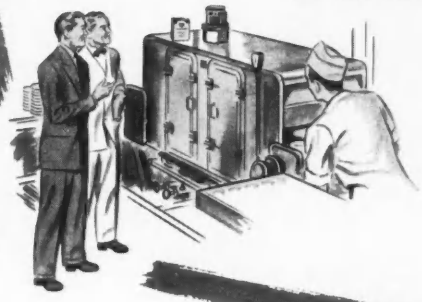

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## New Appointments. Veterans Administration

The following hospital appointments of dietitians, not previously announced, have been made by the Veterans Administration.

| Name | Position | Location |
|---|---|---|
| | *Boston Area* | |
| Eleanor Christie | Staff Dietitian | Castle Point, N. Y. |
| Anne Creighton | Assistant Chief Dietitian | Sunmount, N. Y. |
| Agnes Fidati | Staff Dietitian | Bronx, N. Y. |
| Frances H. Kiel | Assistant Chief Dietitian | Rutland Heights, Mass. |
| Katherine D. Koor Kanian | Staff Dietitian | Manchester, N. H. |
| Evelyn Roth | Staff Dietitian | Montrose, N. Y. |
| Jean P. Waddington | Staff Dietitian | Buffalo, N. Y. |
| Sara J. Walters | Staff Dietitian | Buffalo, N. Y. |
| | *Washington, D. C. Area* | |
| Doris E. Baker | Staff Dietitian | Butler, Pa. |
| Edith Byset | Staff Dietitian | Beckley, W. Va. |
| Doris Haywood | Staff Dietitian | Dayton, Ohio |
| Bernice M. Hooker | Staff Dietitian | Richmond, Va. |
| Janice Kibler | Staff Dietitian | Washington, D. C. |
| Nadine Kirby | Staff Dietitian | Indianapolis, Ind. |
| Mary E. McDonagh | Staff Dietitian | Cleveland, Ohio |
| Anita B. McGary | Staff Dietitian | Louisville, Ky. |
| Margaret D. Mathis | Staff Dietitian | Dayton, Ohio |
| Evelyn B. Murtha | Staff Dietitian | Dayton, Ohio |
| Eleanor D. Nesbit | Staff Dietitian | Dayton, Ohio |
| Genevieve Norwood | Staff Dietitian | Lyons, N. J. |
| Helen H. Snyder | Staff Dietitian | Perry Point, Md. |
| | *Fort Snelling, Minnesota Area* | |
| Louise Blair | Head Dietitian | Grand Island, Neb. |
| Mary L. Brizzolara | Staff Dietitian | Hines, Ill. |
| Mary Chappelle | Head Dietitian | Danville, Ill. |
| Mary Lou Dempsey | Staff Dietitian | Downey, Ill. |
| Gail Kuckuk | Staff Dietitian | Wood, Wis. |
| Ardelle J. Lofquist | Staff Dietitian | Dearborn, Mich. |
| Jean Lindaman | Staff Dietitian | Hines, Ill. |
| Betty McDirmand | Staff Dietitian | Ft. Meade, S. D. |
| Beth Olson | Staff Dietitian | Iron Mountain, Mich. |
| Elaine Ripley | Staff Dietitian | Downey, Ill. |
| Dolores Scharl | Staff Dietitian | Hines, Ill. |
| Betty Shirron | Staff Dietitian | Hot Springs, S. D. |
| Julia Simlick | Staff Dietitian | Hines, Ill. |
| Mary Stucker | Staff Dietitian | Hines, Ill. |
| Margaret R. Wilkinson | Staff Dietitian | Lincoln, Neb. |
| | *San Francisco Area* | |
| Betty Lou Blackburn | Staff Dietitian | Los Angeles, Calif. |
| Shirley Phillips | Staff Dietitian | Fresno, Calif. |
| Lois E. Powell | Staff Dietitian | Los Angeles, Calif. |
| Mary Ann Smith | Staff Dietitian | Los Angeles, Calif. |
| Margie Timko | Staff Dietitian | Spokane, Wash. |
| Burness G. Wenberg | Staff Dietitian | Los Angeles, Calif. |
| Velna Ardiss Werth | Staff Dietitian | Roseburg, Ore. |
| | *Atlanta Area* | |
| Janice C. Arundel | Staff Dietitian | Dublin, Ga. |
| Judith C. Bowman | Staff Dietitian | Kennedy, Memphis, Tenn. |
| Macarita O. Corondao | Staff Dietitian | Kennedy, Memphis, Tenn. |
| Juanita R. Estrada | Staff Dietitian | Memphis, Tenn. |
| Catherine Helms | Staff Dietitian | Kennedy, Memphis, Tenn. |
| Nellie M. Jackson | Staff Dietitian | Oteen, N. C. |
| Jean C. Johnson | Staff Dietitian | Biloxi, Miss. |
| Joan S. Kerschener | Staff Dietitian | Atlanta, Ga. |
| Ann E. Moss | Staff Dietitian | Memphis, Tenn. |
| Donna M. Murry | Staff Dietitian | Atlanta, Ga. |
| Flo Stephenson | Staff Dietitian | Murfreesboro, Tenn. |
| Martha E. White | Staff Dietitian | Kennedy, Memphis, Tenn. |
| Virginia L. Wolfe | Staff Dietitian | Kennedy, Memphis, Tenn. |
| | *St. Louis Area* | |
| Suma Bowles | Staff Dietitian | Houston, Tex. |
| Helen Capillo | Staff Dietitian | Topeka, Kans. |
| Doris I. Chivers | Staff Dietitian | Little Rock, Ark. |
| Carl E. Dahlbeck | Head Dietitian | Kerrville, Tex. |
| Beverly Grow | Staff Dietitian | Houston, Tex. |
| Mary Ann Hutchinson | Staff Dietitian | Dallas, Tex. |
| Dorothy Love | Staff Dietitian | Shreveport, La. |
| Madeline M. Timmons | Chief Dietitian | Amarillo, Tex. |
| Geraldine Wagner | Staff Dietitian | Little Rock, Ark. |
| Rosemary T. Ward | Staff Dietitian | Amarillo, Tex. |